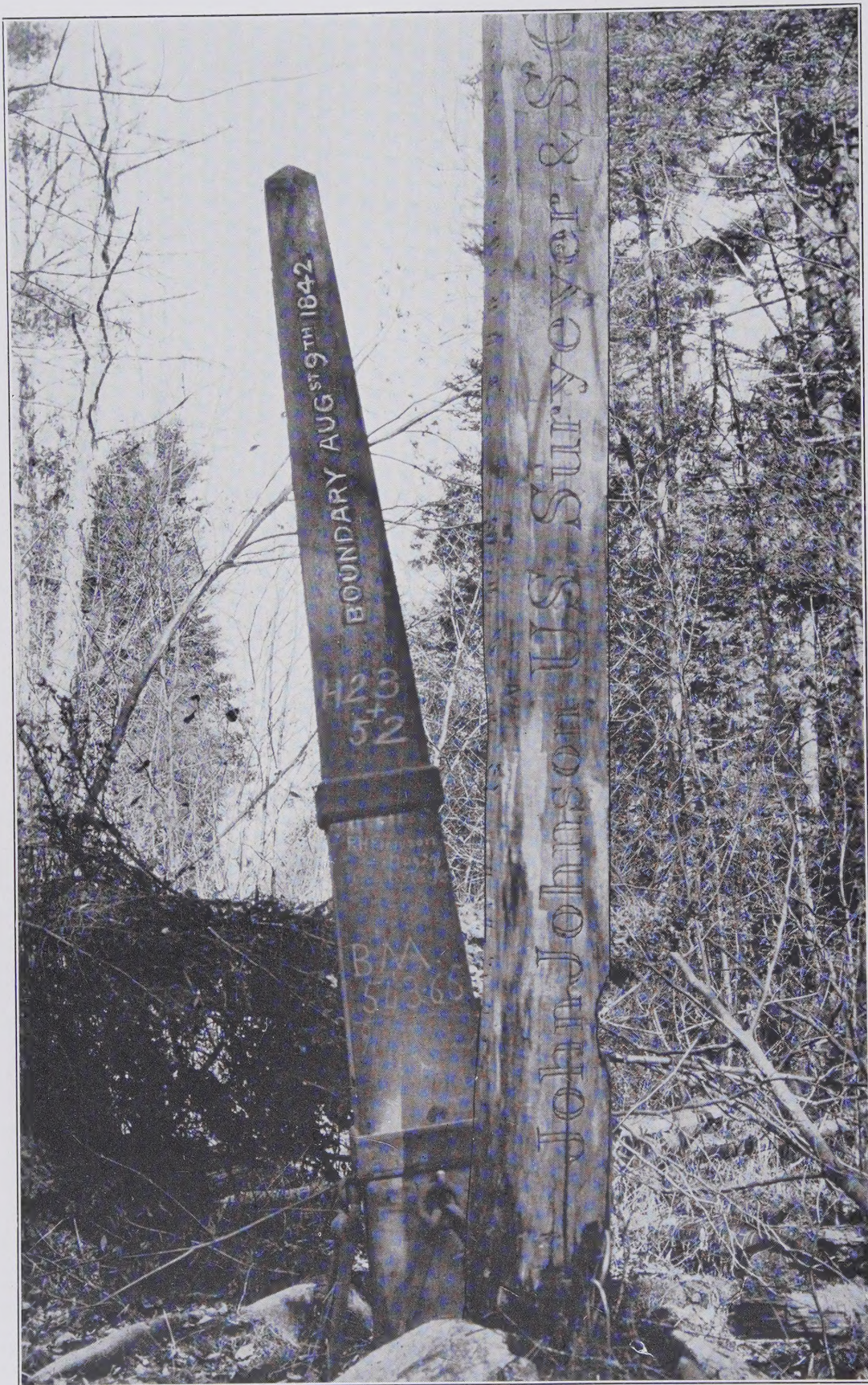


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CEDAR POST SET IN 1817 AND CAST-IRON MONUMENT ERECTED IN 1843 TO MARK THE BOUNDARY AT THE SOURCE OF THE ST. CROIX RIVER

(Photograph taken in 1908)



INTERNATIONAL BOUNDARY COMMISSION

---

## JOINT REPORT

UPON THE

# SURVEY AND DEMARCATION OF THE BOUNDARY

BETWEEN THE

## UNITED STATES AND CANADA

FROM THE SOURCE OF THE ST. CROIX RIVER  
TO THE ST. LAWRENCE RIVER

---

IN ACCORDANCE WITH THE PROVISIONS OF  
ARTICLE III OF THE TREATY SIGNED  
AT WASHINGTON, APRIL 11, 1908

---

HIS BRITANNIC MAJESTY'S COMMISSIONER

W. F. KING, 1908-1916  
J. J. McARTHUR, 1917-

UNITED STATES COMMISSIONER

O. H. TITTMANN, 1908-1915  
E. C. BARNARD, 1915-1921  
E. LESTER JONES, 1921-



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1925

PUBLISHED UNDER THE AUTHORITY OF  
THE INTERNATIONAL BOUNDARY  
COMMISSIONERS



## LETTER OF TRANSMITTAL

WASHINGTON, D. C., *October 30, 1924.*

The Honorable, the SECRETARY OF STATE.

SIR: I have the honor to submit herewith the printed joint report of the survey and demarcation of the international boundary between the United States and Canada from the source of the St. Croix River to the St. Lawrence River, together with duplicate sets of 61 signed joint maps, in accordance with the provisions of Article III of the treaty between the United States and Great Britain, signed at Washington, April 11, 1908.

The report is the third of seven reports which will cover the survey and demarcation of the international boundary between Alaska and Canada and between the United States and Canada from the Atlantic Ocean to the Pacific Ocean, excepting that part of the boundary through the Great Lakes and the St. Lawrence River, which was surveyed and reported upon by the International Waterways Commission in accordance with Article IV of the treaty of April 11, 1908.

The field work, office computations, and preparation of the maps of the section of the international boundary covered by this report were carried on simultaneously with similar operations on other portions of the boundary, under the direction of the original commissioners appointed under the treaty of 1908, for the United States Mr. O. H. Tittmann, who resigned April 15, 1915, and for His Britannic Majesty, Dr. W. F. King, who died April 23, 1916, and their successors, for the United States Mr. E. C. Barnard, appointed commissioner April 30, 1915, who died February 6, 1921, and Mr. E. Lester Jones, appointed commissioner February 28, 1921, and for His Majesty, Mr. J. J. McArthur, appointed commissioner February 26, 1917. The work was completed and the joint report was prepared under the direction of the present commissioners, Mr. J. J. McArthur and Mr. E. Lester Jones.

The report and accompanying 61 signed joint maps herewith submitted are identical with those transmitted by His Britannic Majesty's commissioner to his Government, the report having been printed from the same plates, and the signed original maps, as well as the copies thereof for both countries, having been printed from the same stones.

It is most gratifying to record that the location of the boundary line and the preparation of the maps and report have been accomplished in a spirit of hearty cooperation, and to state that the cordial relations which existed between the former commissioners have been continued by their successors.

I have the honor to be, Sir, very respectfully, your obedient servant,

A handwritten signature in dark ink, reading "E. Lester Jones". The signature is written in a cursive style with a large, stylized initial "E" and a long, sweeping underline.

*United States Commissioner.*





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## INTRODUCTION

The international boundary line between the United States and Canada from the source of the St. Croix River to the St. Lawrence River as surveyed and marked by the International Boundary Commission acting under Article III of the treaty of April 11, 1908, between the United States and Great Britain, is a reestablishment of the boundary as described in Article I of the treaty of August 9, 1842 (commonly called the Webster-Ashburton treaty) and as laid down under Article VI of that treaty by Commissioners Albert Smith and J. B. B. Estcourt, whose final report bears the date of June 28, 1847.

This portion of the international boundary is 670 miles in length, and, lying between the Provinces of New Brunswick and Quebec, on one side, and the States of Maine, New Hampshire, Vermont, and New York, on the other, forms a part of the boundaries of those Provinces and States. The lengths of these Provincial or State boundaries thus formed are: New Brunswick, 164.1 miles; Quebec, 506.2 miles; Maine, 456.6 miles; New Hampshire, 58.8 miles; Vermont, 90.3 miles; and New York, 64.6 miles. For convenience in describing the line, it was divided by the commissioners acting under the treaty of 1842 into nine parts, each of which includes a portion of the boundary topographically distinct from the adjoining subdivisions. To each of these subdivisions an appropriate name was given, and these names appear on the official boundary maps of 1843-1845, and have been used in treatises on the boundary. For this reason they have been retained in this report. The name and extent of each of these subdivisions is shown in the following list:

### SUBDIVISIONS OF THE BOUNDARY

1. The North Line (77.6 miles).—The approximately straight line nearly due north from the source of the St. Croix River to the St. John River.
2. The St. John River (72.0 miles).—From its intersection with the North Line to the mouth of the St. Francis River.
3. The St. Francis River (42.6 miles).—From its mouth to the outlet of Lake Pohenagamook.
4. The Southwest Line (64.2 miles).—The straight line from Lake Pohenagamook to the Northwest Branch of the St. John River, near English Lake.
5. The South Line (19.5 miles).—The straight line from the Northwest Branch of the St. John River near English Lake to the Southwest Branch of the St. John River.
6. The Southwest Branch of the St. John River (38.4 miles).—From the end of the South Line to and through Little St. John Lake.

7. The Highlands<sup>1</sup> (174.6 miles).—From monument 314 on the shore of Little St. John Lake to monument 318 and thence along the crest of the watershed that separates the waters flowing into tributaries of the St. Lawrence River from those flowing into the Penobscot, Kennebec, Androscoggin, and Connecticut Rivers, to monument 507, at the source of Halls Stream.
8. Halls Stream (26.6 miles).—From its source to the intersection of the “Valentine and Collins” or West Line.
9. The West Line (154.9 miles).—The approximate forty-fifth parallel of latitude from Halls Stream to the St. Lawrence River, including the Vermont-Quebec and New York-Quebec lines.

The entire boundary, including its courses through the waterways as well as on land, had been charted by the commissioners under the provisions of Article VI of the Webster-Ashburton treaty above referred to. The land portions of the line had been monumented but, with the exception of monuments to indicate the nationality of the several islands in the St. John River and a series of monuments placed along the edges of certain watercourses to fix the general direction of the boundary, the line along the waterways had never been marked before the survey under the treaty of 1908 was undertaken. In the course of time many of these monuments had deteriorated and the vista along the boundary had become practically obliterated by new growth.

In 1902 the New York-Quebec line was remonumented, and a joint resurvey thereof was made by the State of New York and the Dominion of Canada, “without a formal treaty but by the joint and concurrent action of the Governments of the United States and Great Britain.”<sup>2</sup>

In 1906, by concurrent action of the two Governments, the work of reopening the line and repairing and renewing the monuments between Halls Stream and the Richelieu River was undertaken. These events contributed to the conclusion of the treaty of 1908.

The operations of the commission in carrying out the provisions of Article III of the treaty of 1908 consisted of a careful retracement of the line in the field; the cutting of a vista along the land portion of the boundary; the remonumenting of the land portion of the boundary by the restoration of the original monuments and the establishment of additional monuments where needed; the establishment of reference monuments along the shores of the waterways through which the boundary runs; the determination of the geographic positions of these marks and the azimuths and distances between them by means of accurate triangulation and traverse; the execution of topographic surveys for the “accurate modern charts” required by the treaty; the preparation of these maps and the laying down thereon of the boundary in conformity with its true position as ascertained by the retracement; the preparation of the joint report required by the treaty; and the transmission of duplicate signed copies of the maps and report to each Government.

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<sup>1</sup> In this report the Highlands are considered as beginning at monument 314, on the shore of Little St. John Lake, while the commissioners of 1842 considered the first point on the Highlands to be monument 318, very near the source of a small brook, which the boundary follows from near monument 318 to the lake at monument 314.

<sup>2</sup> See Appendix II, p. 314; also, Article III, treaty of 1908, p. 4.



While field work was being done on this portion of the boundary, there was a very great demand for work on other portions, such as between Alaska and Canada, and along the forty-ninth parallel, and the energies of much the larger part of the staffs of the commission were applied to those sections where the demand for work was most urgent.

The detailed description and definition of the course of the boundary, as marked by the commissioners and as certified by them, is presented in tabular form. It consists of the latitudes and longitudes on North American datum of all turning points or angle points in the line, together with the distances and azimuths between adjacent points.

Appendices containing information of historical interest pertaining to the boundary and supplemental geodetic data have been added. These data consist of elevations and descriptions of bench marks, and of geographic positions and descriptions of triangulation stations. They have been, and will continue to be, of much value to surveyors and engineers for quite other than boundary purposes.

Sketches of the triangulation and precise traverse have been prepared and published on 15 sheets, which accompany the report under a separate cover.

The official boundary maps prepared by the Commission as a part of their report consist of sixty-one (61) sheets and an index sheet, engraved on copper plates and printed from stone on heavy chart paper, size 26 by 38 inches. They show the topography of the country along the boundary, the course of the boundary line, and the locations of the boundary monuments and the boundary reference monuments as certified by the commissioners. The four original sets of these maps, specified by the treaty, are bound in atlas form, two for each Government, and a limited number of copies of each map have been published in sheet form for distribution to depository libraries and to anyone interested in the location of the boundary line at any place.





TREATY OF 1908, APPOINTMENTS OF THE COMMISSIONERS,  
PROCLAMATIONS, AND ORDERS IN COUNCIL

---

TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE  
UNITED KINGDOM CONCERNING THE BOUNDARY BETWEEN  
THE UNITED STATES AND THE DOMINION OF CANADA FROM  
THE ATLANTIC OCEAN TO THE PACIFIC OCEAN

*Signed at Washington, April 11, 1908*

*(Ratifications exchanged at Washington, June 4, 1908)*

The United States of America and His Majesty Edward the Seventh, of the United Kingdom of Great Britain and Ireland, and of the British Dominions beyond the Seas, King, and Emperor of India, being desirous of providing for the more complete definition and demarcation of the international boundary between the United States and the Dominion of Canada, have for that purpose resolved to conclude a treaty, and to that end have appointed as their Plenipotentiaries:

The President of the United States of America, Elihu Root, Secretary of State of the United States; and

His Britannic Majesty, Right Honorable James Bryce, O. M., his Ambassador Extraordinary and Plenipotentiary at Washington;

Who, after having communicated to each other their respective full powers, which were found to be in due and proper form, have agreed to and concluded the following articles:

ARTICLE I

THE BOUNDARY THROUGH PASSAMAQUODDY BAY

The High Contracting Parties agree that each shall appoint, without delay, an expert geographer or surveyor to serve as Commissioners for the purpose of more accurately defining and marking the international boundary line between the United States and the Dominion of Canada in the waters of Passamaquoddy Bay from the mouth of the St. Croix River to the Bay of Fundy, and that in defining and marking said boundary line the Commissioners shall adopt and follow, as closely as may be, the line surveyed and laid down by the Commissioners appointed under Article II of the Treaty of July 22, 1892, between the United States and Great Britain, so far as said Commissioners agreed upon the location of said line, namely:

(1) From a point at the mouth of the St. Croix River defined by the ranges established by them, by a connected series of six straight lines defined by ranges and cross ranges, to a point between Treat Island and Friar Head, likewise defined by ranges and cross ranges established by them; and also

(2) From a point in Quoddy Roads, defined by the intersection of the range passing through the position of the Beacon of 1886 and Lubec Channel Light, with a range established by them on the west shore of Quoddy Roads along the course of this latter range, which is about 80° 35' east of true south, into the Bay of Fundy.

In ascertaining the location of the above-described line, the Commissioners shall be controlled by the indications of the range marks and monuments established along its course by said former Commissioners and by the charts upon which the said Commissioners marked the line as tentatively agreed upon by them.

The remaining portion of the line, lying between the two above-described sections, and upon the location of which said former Commissioners did not agree, shall pass through the center of the Lubec Narrows Channel between Campo Bello Island and the mainland, and, subject to the provisions hereinafter stated, it shall follow on either side of the said Narrows such courses as will connect with the parts of the line agreed upon as aforesaid, and such boundary shall consist of a series of straight lines defined by distances and courses; but inasmuch as differences have arisen in the past as to the location of the line with respect to Pope's Folly Island above Lubec Narrows and with respect to certain fishing grounds east of the dredged channel below Lubec Narrows, it is agreed that each of the High Contracting Parties shall present to the other within six months after the ratification of this Treaty a full printed statement of the evidence, with certified copies of original documents referred to therein which are in its possession, and the arguments upon which it bases its contentions, with a view to arriving at an adjustment of the location of this portion of the line in accordance with the true intent and meaning of the provisions relating thereto of the treaties of 1783 and 1814 between the United States and Great Britain, and the award of the Commissioners appointed in that behalf under the treaty of 1814; it being understood that any action by either or both Governments or their representatives authorized in that behalf or by the local governments on either side of the line, whether prior or subsequent to such treaties and award, tending to aid in the interpretation thereof, shall be taken into consideration in determining their true intent and meaning. Such agreement, if reached, shall be reduced to writing in the form of a protocol and shall be communicated to the said Commissioners, who shall lay down and mark this portion of the boundary in accordance therewith and as herein provided.

In the event of a failure to agree within six months after the date of exchanging the printed statements aforesaid, the question of which Government is entitled to jurisdiction over such island and fishing grounds under treaty provisions, and proceedings thereunder, interpreted in accordance with their true intent and meaning as above provided, and by reason of any rights arising under the recognized principles of international law, shall be referred forthwith for decision upon the evidence and arguments submitted as aforesaid, with such additional statement of facts as may be appropriate, and an argument in reply on each side, to an arbitrator to be agreed upon by the two Governments, or, in case of a failure to agree, to be appointed by a third Power selected by the two Governments by common accord, or, if no agreement is thus arrived at, each Government shall select a different Power and the choice of the arbitrator shall be made in concert by the Powers thus selected. The decision of such arbitrator shall be final, and the line shall be laid down and marked by the said Commissioners in accordance therewith and as herein provided.

The arbitrator shall be requested to deliver, together with his award, a statement of all the costs and expenses incurred by him in connection with the arbitration, which shall forthwith be repaid by the two Governments in equal moieties.

It is further agreed that if, under the foregoing provisions, the boundary be located through the channel to the east of the dredged channel above mentioned, the latter shall be equally free and open for the passage of ships, vessels, and boats of both parties.

The entire boundary shall be marked by permanent range marks established on land and, if desirable in the opinion of Commissioners, by buoys in the water, so far as practicable, and by such other boundary marks and monuments and at such points as the Commissioners may determine to be necessary; but the said Commissioners shall proceed to define and mark and chart the portion of the line agreed upon by the former Commissioners under the Treaty of 1892 aforesaid without waiting for the final determination of the location of the remaining portion of the line.

The course of the said boundary line as defined and marked as aforesaid shall be laid down by said Commissioners on quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, which charts shall be certified and signed by the Commissioners, and two duplicate originals thereof shall be filed by them with each Government; and they shall also prepare in duplicate and file with each Government a joint report or reports under their hands

and seals describing in detail the course and location of the boundary line and the range marks and monuments and buoys marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary from the Bay of Fundy to the mouth of the St. Croix River, as established by treaty provisions and the proceedings thereunder.

## ARTICLE II

### THE BOUNDARY FROM THE MOUTH TO THE SOURCE OF THE ST. CROIX RIVER

Whereas Article II of the Treaty of 1783 between the United States and Great Britain provides that a line drawn along the middle of the River St. Croix from its mouth in the Bay of Fundy to its source shall be, between those points, the international boundary between the United States and the British possessions in North America, and the identity of the River St. Croix has been determined by the Commissioners appointed for that purpose under Article V of the Treaty of 1794 between the United States and Great Britain, and the location of the mouth and the source of said river has been duly established, and the course of said river has been described, surveyed, and charted by said Commissioners, as appears from their joint report dated the 25th day of October, 1798, and from the chart or plan of said river prepared and filed by them with said report, but said line of boundary along the middle of said river was not laid down by them on said chart or plan, and was not marked or monumented by them along the course of said river; and whereas, pursuant to an additional article, dated March 15, 1798, supplementing the provisions of the Treaty of 1794 above referred to, a monument was erected by joint action of the two Governments marking the source of the River St. Croix, but said line of boundary through the River St. Croix has not otherwise been monumented and has never been laid down on charts or by joint action of the two Governments: therefore, in order to complete and render thoroughly effective the demarcation of the boundary described and established as aforesaid,

It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as a Commissioner, and the Commissioners so appointed shall jointly lay down upon accurate modern charts, to be prepared or adopted by them for that purpose, the line of boundary along the middle of the River St. Croix from its mouth to its source as defined and established by the existing treaty provisions and the proceedings thereunder, above referred to, with the agreed understanding, however, that the line of boundary through said river shall be a water line throughout and shall follow the center of the main channel or thalweg as naturally existing, except where such course would change, or disturb, or conflict with the national character of an island as already established by mutual recognition and acquiescence, in which case the line shall pass on the other side of any such island, following the middle of the channel nearest thereto, or, if the Commissioners find that the national character of any island is in dispute, the question of its nationality shall be submitted by them to their respective Governments, with a chart or map certified jointly by said Commissioners, showing the depth and volume of the water at its high and low stages between such island and the river banks on each side and indicating the course of the main channel of the river as it passes such island, together with a descriptive statement by said Commissioners showing the reasons for selecting such channel as the main channel; and in all such cases the High Contracting Parties agree that the location of the boundary with respect to each island in dispute shall be determined and settled in accordance with the following rules:

(1) The nationality of each island in dispute shall be determined by the predominance of the claims established on either side to such island, arising from the exercise of jurisdiction and sovereignty over it, including such exercise of jurisdiction by the local governments on either side of the line.

(2) The burden of proving the nationality of any such island shall be upon the party seeking to change the general course of the boundary as above prescribed so as to include such island on its own side of the boundary.



(3) The selection by the Commissioners of the main channel passing such island shall not be conclusive upon the parties hereto and is subject to review, but the burden of proving the main channel to be other than the one selected shall be upon the party proposing the change.

The Government proposing such change in the prescribed course of the boundary shall, upon the submission of the question of the nationality of any island or islands by the Commissioners as aforesaid, promptly present to the other Government a printed statement, with certified copies of any original documents in its possession referred to therein, showing the grounds and arguments upon which its claim of jurisdiction and ownership with respect to such island rests. Unless an agreement is reached upon the presentation of such statement, the Government to which such statement is presented shall within six months after its receipt present in reply a similar statement showing the grounds and arguments upon which the claims of the other Government are contested. If an agreement is reached between the two Governments, it shall be reduced to writing in the form of a protocol and shall be communicated to the said Commissioners, who shall proceed to lay down and mark the boundary so as to leave such island on the side of the boundary to which it is shown it belongs, in accordance with the determination of its nationality arrived at as aforesaid.

In the event of a failure by the two Governments to come to an agreement within six months after the presentation of the printed statements in reply herein above provided for, then the question of the nationality of the islands in dispute shall be referred forthwith for decision under the rules herein above set forth for the determination of that question, and under the recognized principles of international law not inconsistent therewith, and upon the evidence and arguments submitted as aforesaid, with such additional statement of facts as may be appropriate, and such further printed argument on each side as may be desired, to an arbitrator to be agreed upon by the two Governments, or, in case of a failure to agree, to be appointed by a third Power selected by the two Governments by common accord, or, if no agreement is thus arrived at, each Government shall select a different Power and the choice of the arbitrator shall be made in concert by the Powers thus selected. The decision of such arbitrator shall be final, and the line shall be laid down and marked by the said Commissioners in accordance therewith and as herein provided.

The arbitrator shall be requested to deliver, together with his award, a statement of all the costs and expenses incurred by him in connection with the arbitration, which shall forthwith be repaid by the two Governments in equal moieties.

It is further agreed that so far as practicable the said Commissioners shall establish boundary monuments and ranges and buoys marking the course and location of the said line, and showing on which side of the boundary the several islands lying in said river belong, wherever in their judgment it is desirable that the boundary be so marked.

The charts upon which the boundary is marked as aforesaid shall be in quadruplicate, and shall be certified and signed by said Commissioners, and two duplicate originals thereof shall be filed by them with each Government, and it shall also be the duty of said Commissioners to prepare in duplicate, and file with each Government, a joint report under their hands and seals describing the line so marked by them and the monuments and range marks and buoys marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary from the mouth to the source of the St. Croix River as established by treaty provisions and the proceedings thereunder as aforesaid.

### ARTICLE III

#### *THE BOUNDARY FROM THE SOURCE OF THE ST. CROIX RIVER TO THE ST. LAWRENCE RIVER*

*Whereas the remonumenting of the course of the boundary defined and laid down under the provisions of Articles I and VI of the Treaty of August 9, 1842, between the United States and Great Britain has already been undertaken without a formal treaty agreement, but by the joint and*

concurrent action of the Governments of the United States and Great Britain, certain monuments between Vermont and Canada having been relocated in 1849, and the portion of said boundary extending between Hall's Stream and the St. Lawrence River in part having been remonumented in recent years and in part is now being remonumented under such action on both sides; and whereas the Commissioners appointed under Article VI of the Treaty of 1842 aforesaid were required to and did mark by monuments the land portion only of said line, and were not required to and did not mark by monuments the portions of the boundary extending along water courses, with the exception that the nationality of the several islands in the St. John River was indicated by monuments erected thereon and a series of monuments was placed by them along the edge of certain of the water courses to fix the general direction of the boundary, most of which monuments have since disappeared, but the entire boundary, including its course through the waterways as well as on land, was charted and marked on maps by said Commissioners under the provisions of Article VI above referred to, and the nationality of the respective islands in the St. John River was determined by them, as appears from the joint report filed by said Commissioners dated June 28, 1847, and the series of maps signed by said Commissioners and filed with their joint report; and whereas the portion of the line through said waterways has not since been monumented or marked along its course by joint action of the two Governments, and the monuments placed by said Commissioners along the land portion of said boundary require repairing and renewing where such work has not already been done in recent years, and additional or supplementary intermediate monuments at convenient points are required under modern conditions: therefore, in order to carry on and complete the work already undertaken as aforesaid, and to reestablish the location of said boundary and render thoroughly effective the demarcation of the said boundary as existent and established,

It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as a Commissioner, and under the joint direction of such Commissioners the lost or damaged boundary monuments shall be relocated and repaired, and additional monuments and boundary marks shall be established wherever necessary in the judgment of the Commissioners to meet the requirements of modern conditions along the course of the land portion of said boundary, and where the said boundary runs through waterways it shall be marked along its course, so far as practicable, by buoys and monuments in the water and by permanent ranges established on the land, and in such other way and at such points as in the judgment of the Commissioners it is desirable that the boundary be so marked; and it is further agreed that the course of the entire boundary, as described in Article I of the Treaty of 1842 and as laid down as aforesaid under Article VI of that Treaty, shall be marked by said Commissioners upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, and that said charts so marked shall be certified and signed by them and two duplicate originals thereof shall be filed with each Government, and said Commissioners shall also prepare in duplicate and file with each Government a joint report or reports describing in detail the course of the boundary so marked by them, and the character and location of the several monuments and boundary marks and ranges marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary as defined and laid down under Articles I and VI of the said Treaty of 1842.

#### ARTICLE IV

#### THE BOUNDARY FROM ITS INTERSECTION WITH THE ST. LAWRENCE RIVER TO THE MOUTH OF PIGEON RIVER

The High Contracting Parties agree that the existing International Waterways Commission, constituted by concurrent action of the United States and the Dominion of Canada and composed of three Commissioners on the part of the United States and three Commissioners on the part of the Dominion of Canada, is hereby authorized and empowered to ascertain and reestablish accurately the location of the international boundary line beginning at the point of its intersection with the St. Lawrence River near the forty-fifth parallel of north latitude, as determined under Articles I and VI of the Treaty of August 9, 1842, between the United States and



Great Britain, and thence through the Great Lakes and communicating waterways to the mouth of Pigeon River, at the western shore of Lake Superior, in accordance with the description of such line in Article II of the Treaty of Peace between the United States and Great Britain, dated September 3, 1783, and of a portion of such line in Article II of the Treaty of August 9, 1842, aforesaid, and as described in the joint report dated June 18, 1822, of the Commissioners appointed under Article VI of the Treaty of December 24, 1814, between the United States and Great Britain, with respect to a portion of said line and as marked on charts prepared by them and filed with said report, and with respect to the remaining portion of said line as marked on the charts adopted as treaty charts of the boundary under the provisions of Article II of the Treaty of 1842, above mentioned, with such deviation from said line, however, as may be required on account of the cession by Great Britain to the United States of the portion of Horse Shoe Reef in the Niagara River necessary for the light-house erected there by the United States in accordance with the terms of the protocol of a conference held at the British Foreign Office December 9, 1850, between the representatives of the two Governments and signed by them agreeing upon such cession; and it is agreed that wherever the boundary is shown on said charts by a curved line along the water the Commissioners are authorized in their discretion to adopt, in place of such curved line, a series of connecting straight lines defined by distances and courses and following generally the course of such curved line, but conforming strictly to the description of the boundary in the existing treaty provisions, and the geographical coordinates of the turning points of such line shall be stated by said Commissioners so as to conform to the system of latitudes and longitudes of the charts mentioned below, and the said Commissioners shall so far as practicable mark the course of the entire boundary line located and defined as aforesaid, by buoys and monuments in the waterways and by permanent range marks established on the adjacent shores or islands, and by such other boundary marks and at such points as in the judgment of the Commissioners it is desirable that the boundary should be so marked; and the line of the boundary defined and located as aforesaid shall be laid down by said Commissioners on accurate modern charts prepared or adopted by them for that purpose, in quadruplicate sets, certified and signed by the Commissioners, two duplicate originals of which shall be filed by them with each Government; and the Commissioners shall also prepare in duplicate and file with each Government a joint report or reports describing in detail the course of said line and the range marks and buoys marking it, and the character and location of each boundary mark. The majority of the Commissioners shall have power to render a decision.

The line so defined and laid down shall be taken and deemed to be the international boundary as defined and established by treaty provisions and the proceedings thereunder as aforesaid from its intersection with the St. Lawrence River to the mouth of Pigeon River.

#### ARTICLE V

#### THE BOUNDARY FROM THE MOUTH OF PIGEON RIVER TO THE NORTHWESTERNMOST POINT OF THE LAKE OF THE WOODS

In order to complete and perfect the demarcation of the international boundary line between the United States and the Dominion of Canada from the mouth of Pigeon River, at the western shore of Lake Superior, to the northwesternmost point of the Lake of the Woods, which boundary is defined in Article II of the Treaty of Peace between the United States and Great Britain dated September 3, 1783, and in Article II of the Treaty of August 9, 1842, between the United States and Great Britain, wherein is defined also the location of the said northwesternmost point of the Lake of the Woods, and the greater part of the said boundary is marked on charts covering that section of the boundary adopted as treaty charts of the boundary under the provisions of Article II of the Treaty of 1842 aforesaid, but has never been actually located or monumented along its course by joint action of the two Governments, and no joint survey of its course has been made since the survey under the direction of the Commissioners appointed under Article VII of the Treaty of December 24, 1814, between the United States and Great Britain, under whose direction the charts above mentioned were prepared,



It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as Commissioners, who shall reestablish and fix the actual location of said entire boundary described and charted as aforesaid, and designate the side of the boundary upon which each island adjacent to the boundary belongs, it being mutually understood that the boundary, so far as practicable, shall be a water line and shall not intersect islands lying along its course, and the Commissioners shall so far as practicable mark such boundary along its course by monuments and buoys and range marks, and such other boundary marks as the Commissioners may determine, and at such points as in their judgment it is desirable that the boundary shall be so marked; and it is further agreed that the course of the entire boundary as described and laid down as aforesaid and as monumented by said Commissioners shall be marked by them upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, and that said charts so marked shall be certified and signed by them and two duplicate originals thereof shall be filed with each Government, and said Commissioners shall also prepare in duplicate and file with each Government a joint report or reports describing in detail the course of the boundary so marked by them and the character and location of the several monuments and boundary marks and ranges marking it.

The line so defined and laid down shall be taken and deemed to be the international boundary as defined and established under the aforesaid treaties from the mouth of Pigeon River to the northwesternmost point of the Lake of the Woods.

#### ARTICLE VI

#### THE BOUNDARY FROM THE NORTHWESTERNMOST POINT OF THE LAKE OF THE WOODS TO THE SUMMIT OF THE ROCKY MOUNTAINS

In order to complete and render thoroughly effective the demarcation of the international boundary between the United States and the Dominion of Canada from the northwesternmost point of the Lake of the Woods to the summit of the Rocky Mountains, which boundary, according to existing treaties, runs due south from said northwesternmost point to the forty-ninth parallel of north latitude and thence along that parallel to the summit of the Rocky Mountains, and has been surveyed and charted and monumented as appears from the series of twenty-four sectional maps covering this portion of the boundary prepared and filed by the Joint Commission appointed for that purpose by joint action of the two Governments in 1872,

It is agreed that each of the High Contracting Parties shall appoint, without delay, an expert geographer or surveyor as a Commissioner, and under the joint direction of such Commissioners lost or damaged monuments along the course of said boundary shall be relocated and repaired and additional monuments and boundary marks shall be established wherever necessary, in the judgment of the Commissioners, to meet the requirements of modern conditions and to render more effective the demarcation of the existent boundary established under the treaty provisions and proceedings thereunder as aforesaid; and it is further agreed that in carrying out these provisions the said Commissioners shall observe the agreement stated in the protocol of the final meeting, dated May 29, 1876, of the Joint Commission aforesaid, which is as follows:

"2. In the intervals between the monuments along the parallel of latitude, it is agreed that the line has the curvature of a parallel of 49° north latitude; and that such characteristic shall determine all questions that may hereafter arise with reference to the position of the boundary at any point between neighboring monuments.

"3. It is further agreed that, in the event of any of the said three hundred and eighty-eight monuments or marks being obliterated beyond the power of recognition, the lost site or sites shall be recovered by their recorded position relatively to the next neighboring unobliterated mark or marks."

It is further agreed that the said Commissioners shall mark upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose the entire course of said boundary and the location of the boundary monuments and marks established along the course

of said boundary, and two duplicate originals thereof shall be filed with each Government, and said Commissioners shall also prepare in duplicate and file with each Government a joint report describing in detail the work done by them in replacing and repairing lost or damaged monuments and the character and location of the several monuments and boundary marks placed by them along said boundary.

The line so laid down and defined shall be taken and deemed to be the international boundary as defined and established by treaty provisions and the proceedings thereunder as aforesaid from the northwesternmost point of the Lake of the Woods to the summit of the Rocky Mountains.

## ARTICLE VII

### THE BOUNDARY FROM THE SUMMIT OF THE ROCKY MOUNTAINS TO THE GULF OF GEORGIA

Whereas, by concurrent action of the Government of the United States and the Government of Great Britain in 1902 and 1903, Commissioners were designated to act jointly for the purpose of renewing lost or damaged monuments and placing additional monuments where such were needed throughout the course of the boundary along the forty-ninth parallel of north latitude, from the summit of the Rocky Mountains westward to the eastern shore of the Gulf of Georgia, as defined in Article I of the Treaty of June 15, 1846, between the United States and Great Britain and as marked by monuments along its course and laid down on a series of charts, seven in number, by a Joint Commission organized in 1858 for that purpose and composed of two Commissioners appointed one by each Government, which charts, duly certified and authenticated in duplicate by said Commissioners, were approved and adopted by the two Governments, as appears from the declaration in writing to that effect signed on February 24, 1870, at Washington by duly authorized Plenipotentiaries of the respective Governments, and it appearing that the remonumenting of this line by the Commissioners first above referred to is now approaching completion;

It is hereby agreed by the High Contracting Parties that when such work is completed the entire course of said boundary, showing the location of the boundary monuments and marks established along the course of the boundary, shall be marked upon quadruplicate sets of accurate modern charts prepared or adopted for that purpose, and the said Commissioners, or their successors, are hereby authorized and required to so mark the line and designate the monuments on such charts, two duplicate originals of which shall be filed with each Government, and the said Commissioners, or their successors, shall also prepare in duplicate and file with each Government a joint report describing in detail the work done by them in replacing and repairing lost or damaged monuments and the character and location of the several monuments and boundary marks placed by them along said boundary.

The line so laid down and defined shall be taken and deemed to be the international boundary as defined and established by treaty provisions and the proceedings thereunder as aforesaid, from the summit of the Rocky Mountains to the eastern shore of the Gulf of Georgia.

## ARTICLE VIII

### THE BOUNDARY FROM THE FORTY-NINTH PARALLEL TO THE PACIFIC OCEAN

The High Contracting Parties agree that each shall appoint, without delay, an expert geographer or surveyor to serve as Commissioners for the purpose of delineating upon accurate modern charts, prepared or adopted by them for that purpose, the international boundary line between the United States and the Dominion of Canada from the forty-ninth parallel of north latitude along the middle of the channel which separates Vancouver's Island from the mainland and the middle of the Haro Channel and of Fuca's Straits to the Pacific Ocean, as defined in Article I of the Treaty of June 15, 1846, between the United States and Great Britain, and as

determined by the award made on October 21, 1872, by the Emperor of Germany as arbitrator pursuant to the provisions of Articles XXXIV–XLII of the Treaty of May 8, 1871, between the United States and Great Britain, and as traced out and marked on a quadruplicate set of charts prepared for that purpose and agreed upon and signed by the duly authorized representatives of the respective Governments, as appears from the protocol of a conference at Washington on March 10, 1873, between such representatives which was signed by them on that date, and as defined by them in a written definition of said boundary signed by them and referred to in and attached to said protocol, and it is agreed that the said Commissioners shall adopt in place of the curved line passing between Saturna Island and Patos Island as shown on said charts a straight line running approximately north and south through a point midway between the eastern point of Saturna Island and the western point of Patos Island and intersecting the prolongations of the two straight lines of the boundary now joined by a curved line. The entire line thus laid down shall consist of a series of connecting straight lines defined by distances and courses; and the Commissioners are authorized to select and establish such reference marks on shore as they may deem necessary for the proper definition and location on the water of the boundary aforesaid. A quadruplicate set of such charts, showing the lines so laid down and marked by them and the location of the several marks or monuments selected or established by them along its course, shall be signed by them and two duplicate originals thereof shall be filed by them with each Government, and the Commissioners shall also prepare in duplicate and file with each Government a joint report, or reports, describing in detail the course of said line and the boundary marks and their location along its course.

The line so defined and laid down shall be taken and deemed to be the international boundary, as defined and established by treaty provisions and the proceedings thereunder as aforesaid, from the forty-ninth parallel of north latitude along the middle of the channel which separates Vancouver's Island from the mainland and the middle of Haro Channel and of Fuca's Straits to the Pacific Ocean.

## ARTICLE IX

### GENERAL PROVISIONS

The Commissioners appointed under the provisions of this Treaty shall proceed without delay to perform the duties assigned to them, but each Commissioner shall, before entering upon his duties, make oath in writing that he will impartially and faithfully perform his duties as such Commissioner.

In case a vacancy occurs in any of the Commissions constituted by this Treaty, by reason of the death, resignation, or other disability of a Commissioner, before the work of such Commission is completed, the vacancy so caused shall be filled forthwith by the appointment of another Commissioner by the party on whose side the vacancy occurs, and the Commissioner so appointed shall have the same powers and be subject to the same duties and obligations as the Commissioner originally appointed.

If a dispute or difference should arise about the location or demarcation of any portion of the boundary covered by the provisions of this Treaty and an agreement with respect thereto is not reached by the Commissioners charged herein with locating and marking such portion of the line, they shall make a report in writing jointly to both Governments, or severally each to his own Government, setting out fully the questions in dispute and the differences between them, but such Commissioners shall, nevertheless, proceed to carry on and complete as far as possible the work herein assigned to them with respect to the remaining portions of the line.

In case of such a disagreement between the Commissioners, the two Governments shall endeavor to agree upon an adjustment of the questions in dispute, and if an agreement is reached between the two Governments it shall be reduced to writing in the form of a protocol, and shall be communicated to the said Commissioners, who shall proceed to lay down and mark the boundary in accordance therewith, and as herein provided, but without prejudice to the special provisions contained in Articles I and II regarding arbitration.



It is understood that under the foregoing articles the same persons will be appointed to carry out the delimitation of boundaries in the several sections aforesaid, other than the section covered by Article IV, unless either of the Contracting Powers finds it expedient for some reason which it may think sufficient to appoint some other person to be Commissioner for any one of the above-mentioned sections.

Each Government shall pay the expenses of its own Commissioners and their assistants, and the cost of marking and monumenting the boundary shall be paid in equal moieties by the two Governments.

#### ARTICLE X

This Treaty shall be ratified by the President of the United States, by and with the advice and consent of the Senate thereof, and by His Britannic Majesty; and the ratifications shall be exchanged in Washington as soon as practicable.

In faith whereof the respective Plenipotentiaries have signed this Treaty in duplicate and have hereunto affixed their seals.

Done at Washington the 11th day of April in the year of our Lord one thousand nine hundred and eight.

ELIHU ROOT [SEAL.]  
JAMES BRYCE [SEAL.]

APPOINTMENTS OF THE COMMISSIONERS, UNDER THE INFORMAL  
AGREEMENT OF 1906

MR. O. H. TITTMANN FOR THE UNITED STATES

DEPARTMENT OF STATE, *Washington, July 10, 1906.*

MR. O. H. TITTMANN,

*Superintendent of the Coast and Geodetic Survey, Washington, D. C.*

SIR: You are hereby designated as Commissioner to represent the United States in the more perfect mapping and demarcation of the Boundary between the United States and the Dominion of Canada from the Richelieu River eastward to the waters of the St. Croix.

The immediate duty assigned to you is to supervise the demarcation under the terms of the appropriation act approved June 16, 1906, which authorizes the work between the Richelieu River and Hall's Stream, and you are hereby authorized to arrange the details and to carry out the work and to sign the full report and maps as Commissioner for the United States jointly with the British Commissioner.

It has been arranged with respect to this work that each Government shall bear the expenses of its own Commissioner, his surveyor and assistants, and that the cost of the monuments, their transportation and erection shall be shared equally by the two Governments.

All vouchers for expenditures incurred under these instructions should be approved by you, or in your absence by the Acting Superintendent of the Coast and Geodetic Survey.

I am, Sir, Your obedient servant,

ROBERT BACON,  
*Acting Secretary.*

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DR. W. F. KING FOR HIS BRITANNIC MAJESTY

BRITISH EMBASSY, *Lenox, Mass., August 15, 1906.*

SIR: I have the honor to inform you that I have received from the Governor General of Canada a copy of an approved minute of the Privy Council for Canada nominating Mr. W. F. King, Chief Astronomer of the Department of the Interior, to be His Majesty's Commissioner for the re-survey and re-marking of the International Boundary line between the Richelieu and St. Croix Rivers.

With a view to the early commencement of field work the terms of the minute authorise Mr. King to communicate directly with the United States Commissioner, who, as you informed me in your note No. 480 of July 11th is Mr. O. H. Tittmann, of the United States Coast and Geodetic Survey.

I have, etc.

H. M. DURAND.

The Honourable,

ROBERT BACON,  
*Acting Secretary of State.*

APPOINTMENTS OF THE COMMISSIONERS UNDER THE TREATY  
OF 1908

MR. O. H. TITTMANN FOR THE UNITED STATES

THEODORE ROOSEVELT, PRESIDENT OF THE UNITED STATES OF AMERICA

*To all to whom these Presents shall come, Greeting:*

Know ye, that reposing special trust and confidence in the integrity and ability of Otto H. Tittmann, of Missouri, Superintendent of the United States Coast and Geodetic Survey, I do appoint him the expert Commissioner on the part of the United States for the purpose of more accurately defining and marking the international boundary line between the United States and the Dominion of Canada, under the provisions of Articles I, II, III, V, VI, VII, and VIII of the treaty between the United States and Great Britain, signed at Washington on April 11, 1908, and do authorize and empower him to execute and fulfill the duties of this commission with all the powers, privileges, and emoluments thereunto of right appertaining, during the pleasure of the President of the United States.

In testimony whereof, I have caused the Seal of the United States to be hereunto affixed.

Given under my hand at the City of Washington this fifth day of June, in the year of our Lord one thousand nine hundred and eight, and of the Independence of the United States of America the one hundred and thirty-second.

[SEAL OF THE UNITED STATES OF AMERICA.]

THEODORE ROOSEVELT.

By the President:

ELIHU ROOT, *Secretary of State.*

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AMERICAN EMBASSY, *London, June 24, 1908.*

SIR: I have the honour to inform you that Mr. Otto H. Tittmann, Superintendent of the United States Coast and Geodetic Survey, has been appointed the expert Commissioner on the part of the United States for the delimitation of the boundary line between the United States and Canada, under Articles I, II, III, V, VI, VII, and VIII of the Treaty of April 11th, 1908, between Great Britain and the United States.

I have, etc.,

WHITELAW REID.

Sir EDWARD GREY, Bart.

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DR. W. F. KING FOR HIS BRITANNIC MAJESTY

P. C. 2303-M

DOWNING STREET, *15th July, 1908.*

*My Lord:* I have the honour to transmit to you for the information of your Ministers, with reference to my telegram of the 13th of July, the papers noted in the subjoined schedule, on the subject of the appointment of Mr. W. F. King as British Commissioner under the Boundary Delimitation Treaty with the United States.

I have, etc.,

CREWE.

THE OFFICER ADMINISTERING THE GOVERNMENT OF CANADA.

*13th July, Foreign Office.*

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FOREIGN OFFICE, *13th July, 1908.*

*Sir:* In reply to your letter of the 11th instant, I am directed by Secretary Sir E. Grey to state that he concurs in the appointment of Mr. W. F. King as British Commissioner, under



the Treaty of April 11th last with the United States Government for the delimitation of all the Sections of the Boundary between the United States and Canada mentioned in the above treaty, except the fourth, which includes the line through the St. Lawrence River and the Great Lakes.

His Majesty's Charge d'Affaires at Washington has been instructed by telegraph (copy enclosed) to inform the United States Government of Mr. King's appointment.

I am, etc.,

F. A. CAMPBELL.

The UNDER SECRETARY OF STATE, *Colonial Office*.

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TELEGRAM TO MR. HOWARD, WASHINGTON, FROM FOREIGN OFFICE, NO. 87, DATED JULY 11, 1908

"Your despatch No. 213. (June 17th. Boundary Delimitation Treaty.)

"Inform United States Government that Mr. William Frederick King, C. M. G., Dominion Topographical Surveyor and Chief Astronomer of the Dominion, Department of the Interior, has been appointed British Commissioner for all sections of the boundary except the fourth, which includes the St. Lawrence River and Great Lakes."

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P. C. 2288-M

FROM CHARGE D'AFFAIRES TO U. S. TO LORD GREY

BRITISH EMBASSY, *Manchester, Mass., 13th July, 1908.*

*My Lord:* I have the honour to inform your Excellency that upon receipt of telegraphic instructions to that effect from His Majesty's Principal Secretary of State for Foreign Affairs, I have communicated to the United States Government the appointment of Dr. William Frederick King, C. M. G., British Commissioner for the delimitation of such sections of the Boundary between Canada and the United States as are not otherwise provided for in the Treaty recently signed.

I have, etc.,

ESME HOWARD.

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MR. E. C. BARNARD FOR THE UNITED STATES

WOODROW WILSON, PRESIDENT OF THE UNITED STATES OF AMERICA

*To all to whom these Presents shall come, Greeting:*

Know Ye, that reposing special trust and confidence in the integrity and ability of Edward C. Barnard, of New York, I do appoint him the expert Commissioner on the part of the United States for the purpose of more accurately defining and marking the international boundary line between the United States and the Dominion of Canada, under the provisions of Articles I, II, III, V, VI, VII, and VIII of the treaty between the United States and Great Britain, signed at Washington on April 11, 1908, and do authorize and empower him to execute and fulfill the duties of this commission with all the powers, privileges and emoluments thereunto of right appertaining, during the pleasure of the President of the United States.

In testimony whereof, I have caused the Seal of the United States to be hereunto affixed.

Given under my hand at the City of Washington this thirtieth day of April, in the year of our Lord one thousand nine hundred and fifteen, and of the Independence of the United States of America the one hundred and thirty-ninth.

[SEAL]

WOODROW WILSON.

By the President,

W. J. BRYAN, *Secretary of State*.

## MR. J. J. McARTHUR FOR HIS BRITANNIC MAJESTY

GEORGE by the Grace of God, of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India, &c, &c.

*To All and Singular to whom these Presents shall come, Greeting:*

Whereas by a Treaty concluded at Washington on the 11th day of April, 1908, between our Royal Predecessor His Majesty King Edward VII and our Good Friends the United States of America, respecting the Demarcation of the International Boundary between the United States and the Dominion of Canada, it was in effect provided that Commissioners should be appointed on Our part and on that of Our said Good Friends, and that the Commissioners so appointed should define and mark the Boundary Line, with the exception of that portion of it extending from the 45th Parallel of north latitude through the St. Lawrence River, the Great Lakes and connecting waterways to the mouth of the Pigeon River;

Now Know Ye that We, reposing especial trust and confidence in the approved learning, wisdom and fidelity of Our Trusty and Well-Beloved James Joseph McArthur, Esquire, Dominion Land Surveyor, have named and appointed, as We do by these Presents name and appoint him to be Our Commissioner for the purposes aforesaid and pursuant to the said Treaty, to meet the other Commissioner appointed or to be appointed in like manner by Our Good Friends the United States of America, to do and determine all such matters as are provided to be done by him under the said Treaty, in the manner therein provided.

In witness whereof We have signed these presents with Our Royal Hand.

Given at Our Court of Saint James the Twenty-sixth day of February One thousand Nine Hundred and Seventeen in the Seventh year of Our Reign.

By His Majesty's Command:

ARTHUR JAMES BALFOUR.

## MR. E. LESTER JONES FOR THE UNITED STATES

WOODROW WILSON, PRESIDENT OF THE UNITED STATES OF AMERICA

*To all to whom these Presents shall come, Greeting:*

Know Ye, that reposing special trust and confidence in the integrity and ability of E. Lester Jones, of Virginia, I do appoint him the expert Commissioner on the part of the United States for the purpose of more accurately defining and marking the international boundary line between the United States and the Dominion of Canada, under the provisions of Articles I, II, III, V, VI, VII, and VIII of the treaty between the United States and Great Britain, signed at Washington on April 11, 1908, and do authorize and empower him to execute and fulfil the duties of this commission with all the powers, privileges and emoluments thereunto of right appertaining, during the pleasure of the President of the United States.

In testimony whereof, I have caused the Seal of the United States to be hereunto affixed.

Given under my hand, in the District of Columbia, this twenty-eighth day of February, in the year of our Lord one thousand nine hundred and twenty-one, and of the Independence of the United States of America the one hundred and forty-fifth.

[SEAL]

WOODROW WILSON.

By the President:

BAINBRIDGE COLBY, *Secretary of State.*

## PROCLAMATIONS BY THE PRESIDENT OF THE UNITED STATES OF AMERICA (RESERVATION OF LANDS ON CANADIAN BOUNDARY)

Whereas, the customs and immigration laws of the United States can be better enforced and the public welfare thereby better advanced when the Federal Government has complete control of the use and occupation of lands abutting on international boundary lines;

Now, therefore, I, Theodore Roosevelt, President of the United States, do hereby proclaim and make known that all unpatented public lands of the United States, lying within sixty feet of the boundary line between the United States and the Dominion of Canada, are hereby declared to be, and are set apart as a public reservation, and shall hereafter be subject only to such rights as have been heretofore legally acquired under settlements, entries, reservations, or other forms of appropriation, and are now existing, but shall not be subject at any time to any other claim, use, or occupation, except for public highways; and any patent issued for any legal subdivision affected by this reservation under any claim hereafter initiated, shall contain a recital that it is issued subject to this proclamation.

In witness whereof, I have hereunto set my hand and caused the Seal of the United States to be affixed.

Done at the City of Washington this 15th day of June, in the year of our Lord one thousand nine hundred and eight, and of the Independence of the United States the one hundred and thirty-second.

[SEAL.]

THEODORE ROOSEVELT.

By the President:

ELIHU ROOT,

*Secretary of State.*

(No. 810)

Whereas, the customs and immigration laws of the United States can be better enforced and the public welfare thereby advanced by the retention in the Federal Government of complete control of the use and occupation of lands abutting on International Boundary Lines;

Now, therefore, I, William Howard Taft, President of the United States, do hereby declare, proclaim, and make known that there are hereby reserved from entry, settlement, or other form of appropriation and disposition under the public-land laws, and set apart as a public reservation, all public lands lying within sixty feet of the Boundary Line between the United States and the Dominion of Canada.

Excepting from the force and effect of this proclamation all lands which were prior to June fifteenth, nineteen hundred and eight, embraced in any legal entry or covered by any lawful filing, selection, or right of way duly of record in the proper United States land office or upon which any valid settlement had been made pursuant to law, the statutory period within which to make or complete entry or filing of record had not expired, and which has been or may be perfected as required by law. Any claims lawfully initiated between June fifteenth, nineteen hundred and eight, and the date hereof, lawfully maintained and perfected, may be patented subject to the reservation prescribed in proclamation of the President dated June fifteenth, nineteen hundred and eight.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington, this third day of May, in the year of our Lord one thousand nine hundred and twelve, and of the Independence of the United States the one hundred and thirty-sixth.

[SEAL]

WM. H. TAFT

By the President:

HUNTINGTON WILSON

*Acting Secretary of State.*

(No. 1196)



## ORDERS IN COUNCIL CREATING A RESERVED STRIP ALONG THE BOUNDARY ON THE CANADIAN SIDE IN THE PROVINCE OF NEW BRUNSWICK

The Honourable the Minister of Lands and Mines reports for the information of the committee of the Executive Council:—

That the International Boundary Commission, Department of Interior, Ottawa, desires that a strip, sixty feet (60) in width, through the Crown Lands of the Province of New Brunswick, be reserved on the eastern side of the International Boundary between the Province of New Brunswick and State of Maine.

The Honourable the Minister of Lands and Mines now recommends that all ungranted crown lands bordering on the eastern side of the International Boundary Line between the Province of New Brunswick and the State of Maine to the extent of sixty (60) feet, from said line be reserved for government purposes.

And His Honour the Lieutenant-Governor and Committee of Council concurring in said report and recommendation

IT IS ACCORDINGLY SO ORDERED.

Certified passed.

August 7th, 1923.

M. B. DIXON,

*Clerk Executive Council.*

## AGREEMENTS OF THE COMMISSIONERS AS TO THE MANNER IN WHICH THE PROVISIONS OF ARTICLE III OF THE TREATY OF 1908 SHOULD BE CARRIED OUT

At a meeting of the commissioners held in Ottawa on December 28, 1908, the appointments of the commissioners under the treaty of April 11, 1908, were presented and found to be in due and proper form. At this and subsequent conferences of the commissioners it was agreed that the provisions of Article III of the treaty of 1908 should be carried out in the following manner:

I. That the work of retracement and remonumenting of the New York-Quebec boundary, which had already been done in 1902 jointly by the Dominion Government and the State of New York, and the similar work, which had been done in 1906 and 1907 on the line between Vermont and Quebec subsequent to joint and concurrent action of the Governments of the United States and Great Britain, should be accepted and the results incorporated in the commissioners' report.

II. That the boundary from the source of the St. Croix River to the St. Lawrence River, when reestablished, should consist throughout of a series of connecting straight courses, marked by permanent boundary monuments or where the boundary lies in a watercourse, referred to permanent monuments on the shores.

III. That in carrying out the provisions of the second paragraph of Article III of the treaty of 1908, relative to boundary monuments and marks, all original cast-iron boundary monuments set under the treaty of 1842, where found intact, should be filled with concrete and reset in concrete bases of uniform design, each 3 feet square and of sufficient depth to extend below the frost



General method of resetting the original cast-iron monuments



line; and that additional or supplementary intermediate monuments necessary to mark other points on the boundary, such as sites of original monuments which had been destroyed, important road crossings of the boundary and at "line houses," should be of cast-iron, concrete, or granite, set in concrete bases.

IV. That each monument should bear a suitable number, cut in the metal or stamped on its base, to identify it on the ground and in the final reports and maps.

V. That each deflection point of the reestablished boundary along the Highlands, other than those marked by the cast-iron monuments referred to in Paragraph III above, should be marked by a monument consisting of a 3-inch bronze disk set either in solid outcropping ledge of rock or in a concrete-filled section of 4-inch vitrified pipe set bell-end down with top flush with the ground, and that in addition to the number of the deflection point the disk should bear on the appropriate sides of a center line across its face the words "UNITED STATES" and "CANADA."

VI. That the boundary through timbered areas should be further marked by a vista along the line of sufficient width to give a cleared 20-foot sky line.

VII. That for the purpose of accurately defining, locating, and describing the boundary as laid down by the commissioners all boundary monuments and boundary reference marks should be located geodetically on North American datum by triangulation or by accurate traverses controlled by triangulation, and their positions should be certified by the commissioners in their joint report as being a true description and definition of the international boundary as reestablished, surveyed, and marked in accordance with Article III of the treaty of 1908.

VIII. That the charts of the boundary, specified in Article III of the treaty, should consist of a series of 61 topographic maps, to be prepared from surveys made by the commissioners, showing the boundary monuments and the course of the boundary and the topography for a minimum distance of one-half mile on each side of the line. That the scales of these maps should be as follows: the maps of Halls Stream and the Southwest Branch of the St. John River, 1:6,000; of the St. John River and the St. Francis River, 1:12,000; and of all the land portion of the boundary, 1:24,000. That the contour interval for all the maps should be 20 feet.

IX. That the maps of the boundary should be engraved on copper plates and printed from stone, using the conventional colors and symbols, and that after the completion of the print-



Intermediate boundary monument and cleared vista



ing, and the signing of the official maps by the commissioners, the engraved copper plates should be deposited in fireproof vaults for safe-keeping.

X. That the field work of retracing, locating, mapping, and monumenting the boundary should be divided, in approximately equal amounts, between the two sections of the commission, as follows:

All the work, except the main scheme triangulation, from the St. Croix River to the St. John River and along the St. John River to the St. Francis River to be allotted in general to joint parties of United States and Canadian surveyors, and similar work along the lower half of the St. Francis River to United States surveyors, and along the upper half of the river to Canadian surveyors; and the main scheme triangulation, furnishing the major control for the above work from the source of the St. Croix River to Lake Pohenagamook, to Canadian surveyors.

All the field work, except the monumenting, from Lake Pohenagamook along the Southwest Line to monument 187, and from monument 222 to English Lake, and thence along the South Line to the Southwest Branch of the St. John River, to surveyors of the United States section of the commission; and all the monumenting along the Southwest Line and the South Line, from Lake Pohenagamook to the Southwest Branch of the St. John River, and all the other field work from monument 187 to monument 222 on the Southwest Line, to surveyors of the Canadian section.

All the field work on the boundary along the Southwest Branch of the St. John River and on the boundary along the Highlands from the Southwest Branch of the St. John River southwestward to monument 402, the point where the Canadian Pacific Railway crosses the boundary, to be surveyed by Canadian parties; and all the work on the boundary along the Highlands westward from monument 402 to the head of Halls Stream and along Halls Stream to the "Valentine and Collins" line to be allotted to United States surveyors.

The main scheme triangulation along the Vermont-Quebec line westward from Halls Stream to the Richelieu River, to control the retracement, monumenting, and mapping of the boundary done jointly by the United States and Canadian surveyors under the joint and concurrent action of the two Governments in 1906 and 1907, to be done by Canadian surveyors.

The work of making a topographic map of the country adjacent to the boundary from the Richelieu River to the St. Lawrence River to be done by surveyors of the United States section, and the field work of tying the traverse of this line to the primary triangulation of the Geodetic Survey of Canada to be done by Canadian surveyors.

XI. That, along Halls Stream, the Southwest Branch of the St. John River, and the St. Francis River where the beds of the streams have been changed in certain places by avulsion since the boundary line was laid down in 1845, in order to "reestablish the location of the said boundary" in accordance with the provision of Article III of the treaty of 1908, specifying that the course of the entire boundary should be marked by said commissioners as described in Article I of the treaty of 1842 and as laid down as aforesaid under Article VI of that treaty, the line should be relocated along the old bed of the stream as shown on the maps prepared under the treaty of 1842, and not along the new channels which have been formed since then.

## RETRACEMENT OF THE BOUNDARY LINE

Before the work of locating, remonumenting, and mapping any section of the boundary could be undertaken, it was necessary to identify on the ground the line as laid down under the provisions of the treaty of August 9, 1842.<sup>3</sup>

The character of this work varied according to conditions. Along the Highlands, the work consisted of running out the line between monuments in accordance with the old notes, or, where the notes were obviously in error, by following the crest of the watershed or traces of the old vista. On straight-line sections of the boundary, dependence was placed chiefly upon the location of important monuments, the operations consisting of searching for and finding the monuments and determining whether any of them had been moved from their original sites. Where the boundary followed watercourses, and no old notes were available and but few monuments had originally been set, the course of the line was taken entirely from the original boundary maps, the chief problem being to determine in each case whether the channel of the stream had been changed by avulsion since the treaty of 1842, as, for example, on parts of Halls Stream, and in such case to find the bed of the original channel, which, as agreed by the commissioners, was to determine the final location of the line.

<sup>3</sup> The details of the work of retracement are given in the chapters on "Field operations," "Description of field methods," and "Description of office methods."



Triangulation signal erected over boundary monument on North Line



## THE NORTH LINE

The retracement of this portion of the boundary, from the source of the St. Croix River northward 78 miles to the St. John River, was made from the survey notes of 1843, accepting as fixed points on the boundary those monuments which were found not to have been moved. A vista was cleared between monuments where necessary, and the line run out and measured. The distances between monuments, and the 25 deflections in the line, averaging about 12 minutes of arc, were found to agree closely with the measurements made during the survey of 1843. One hundred and six of the old boundary monuments were found on their original sites, and eleven monuments were found to have been displaced and were later restored to the line by the monumenting party, only one, however, being placed in its original position.<sup>4</sup>

## THE BOUNDARY ALONG THE ST. JOHN RIVER

The records of the original survey of the boundary through the St. John River, made under the treaty of 1842, consist of a set of general maps showing the islands and shore line of the river, the boundary, the mouths of tributary streams, and a few roads and buildings, on a scale of 4 inches to the mile, and a set of detail maps showing the soundings between the islands and the mainland, on a scale of 12 inches to the mile. The maps showed that 60 cast-iron monuments had been placed on the islands in the river to indicate their nationality, but no records or notes of the old survey could be found to show the exact relation of the monuments to the boundary or to the shore lines of the river. The original location of the boundary had to be determined, therefore, solely by its position as shown on the maps in relation to the topography of the adjacent islands and streams.

The work, therefore, of retracing the line along the river included making an accurate topographic map and comparing this map with the old maps to determine



Special type of cast-iron monument, as reset at source of St. Croix River

<sup>4</sup> See chapter "Monuments and monumenting," p. 107.



what changes had occurred in the shore lines of the river and islands since 1843, and then drawing on the new map a series of straight-line courses conforming as nearly as practicable to the course of the curved boundary shown on the original maps. It was agreed by the commissioners that this series of connecting straight lines should be tied to reference monuments set on the river banks and islands, and should constitute the final location of the boundary.

#### THE BOUNDARY ALONG THE ST. FRANCIS RIVER

The retracement of the boundary along the St. Francis River presented the same problem as that on the St. John River. No notes of the original survey were available, but the old commission maps of 1843 showed this part of the boundary as a curved line following the channel of the stream.

A new topographic map was made and the course of the stream was compared with that shown on the old maps. It was quite evident from this comparison that at some places there had been a gradual shifting of the channel, due to the swift current cutting away the banks at sharp bends and building up sand bars, and that at two places the stream had been changed by avulsion.

At the places where the change in the river had been gradual and due to erosion and accretion, the boundary was placed as near the center of the present channel as practicable, and at the two places where the stream had abruptly left the old channel the line was laid down along the course of the old channel, which was well defined and easily identified. Throughout its entire course, the new boundary consists of a series of connecting straight lines conforming as closely as practicable to the curved line shown on the old maps.

#### THE SOUTHWEST AND SOUTH LINES

The Southwest and South Lines, comprising the section of boundary from Lake Pohenagamook to the Southwest Branch of the St. John River, as surveyed under the treaty of 1842, consisted of two lines, intersecting near the southern end of English Lake and having a combined length of 84 miles, along which there had been set 131 cast-iron monuments, fairly uniformly distributed. The records of the original survey consisted of the old commission maps and survey notes which gave the distances between monuments and the results of astronomical observations, determining the azimuths of the lines.

The boundary was retraced by clearing a vista between monuments and running a precise traverse with theodolite and invar tape in accordance with the original notes. The direction of the line was verified by observing an astronomical azimuth at a station on the boundary at Lake Pohenagamook. The results of this observation differed from the azimuth of the line as observed in 1843-44 by only 4 seconds of arc. The precise traverse of the Southwest Line and the South Line developed the fact that sections of the monumented line running between prominent intervisible points deviated slightly from the two major straight lines indicated by the old notes. These deflections had a mean value of 14 seconds and were not cumulative. All the

old monuments except four were found in place and were reset in concrete bases to make the line conform as closely as possible to the original straight-line locations indicated by the precise traverse.

### THE BOUNDARY ALONG THE SOUTHWEST BRANCH OF THE ST. JOHN RIVER

The original records consist of a set of maps made during the survey under the treaty of 1842, upon which are shown the river with the boundary midway between its banks, also the tributary brooks and the five monuments set in 1845.

The retracement of this part of the line was accomplished by making an accurate topographic map of the stream and comparing its course with that shown on the maps made in 1844-45. This comparison indicated that, with one exception, only a few minor changes in the position of the stream had taken place due to erosion and accretion. Accordingly, the boundary was laid down as a series of straight lines following the center of the present channel as closely as practicable, except at the one place where the stream had abruptly left the old channel, where it was laid down along the course of the old channel, which was well defined and easily identified. The boundary throughout was made to conform as nearly as practicable to the curved boundary shown on the old maps. Because of the narrowness of the stream this was done in the field instead of by scaling from the map as was done in the case of the St. John River. The position of the line was fixed by permanent reference monuments established along the banks.

### THE BOUNDARY ALONG THE HIGHLANDS

The Highlands boundary, which extends from a point near Little St. John Lake at the source of the Southwest Branch of the St. John River to the head of Halls Stream, a distance of 175 miles, follows the crest of the watershed which separates the headwaters of the Penobscot, Kennebec, Androscoggin, and Connecticut Rivers from the waters which flow into the St. Lawrence River. The course of this part of the boundary is very tortuous. As established under the treaty of 1842, it was marked by a vista and by 192 cast-iron monuments and 2 wooden monuments fairly uniformly distributed along the boundary. The records of the original survey include maps of the boundary and notes of two independent traverses run along the crest of the divide by British and United States parties, respectively, in 1844-45. The deflection points of neither of these traverses were permanently



Stump of old vista cuttings of 1845 on Highlands boundary



marked in any way between the iron monuments. Each traverse was tied to the iron monuments and each independent survey was controlled by a system of guide lines with offsets at frequent intervals to the boundary traverses.

The work of retracing the line was begun by searching for the iron monuments set in 1844-45. All of these were recovered, and in addition the sites of the two wooden monuments, identified by mounds of stone which had been piled around the posts, were found. In general the line between adjacent original monuments was laid down by determining the relative positions of the monuments by triangulation or precise traverse, and then reproducing on the ground the original traverse, which was first adjusted to make the distances along the boundary between monuments consistent with the newly determined positions of the monuments. By agreement the parties used the British notes of the old survey from the source of the Southwest Branch of the St. John River to monument 418 and the United States notes from that point to the head of Halls Stream. This resulted in a satisfactory retracement



Remains of survey post set in old vista on the Highlands about  
1870



Commissioner Barnard and timber cruiser tracing course of old vista on Highlands near Arnold Pond, 1916



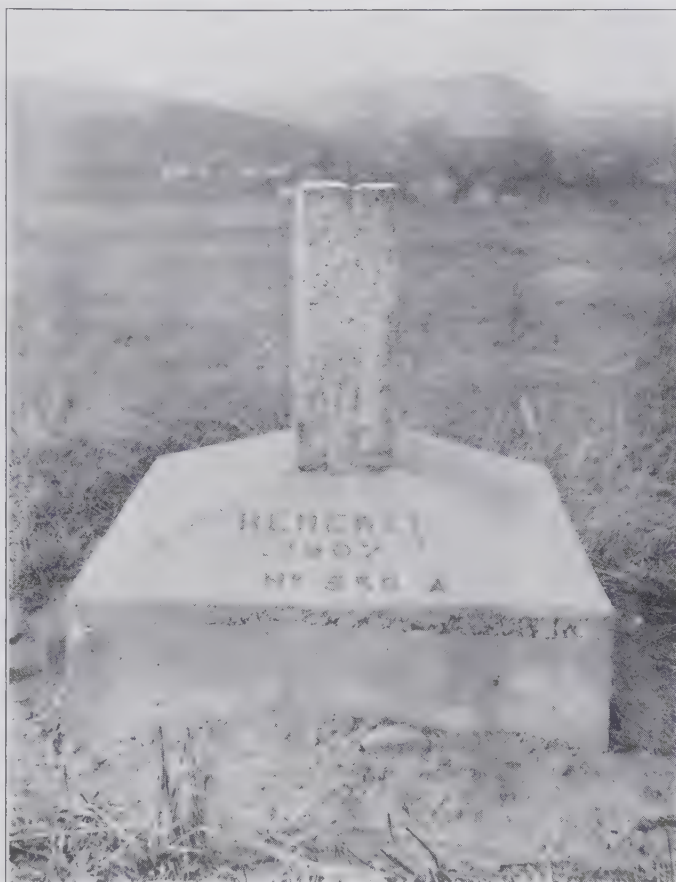
of the boundary throughout the greater part of its course, but in several places the line, as thus redetermined, departed from the old vista or from the sharp crest of the watershed. In such instances, parts of the old survey notes had to be disregarded and the line reestablished by following the old vista or the crest of the divide.

### THE BOUNDARY ALONG HALLS STREAM

The Halls Stream boundary retracement was based on the boundary maps of 1845, using the same method as along the Southwest Branch of the St. John River. No notes of the old survey were available.

The new topographic map of Halls Stream Valley furnished the means of comparing the present position of the stream with that shown on the old maps

of 1845. The comparison showed that a considerable number of abrupt changes had occurred in the channel of the stream since the original survey, and in such cases the old abandoned channels, which in 1845 were a part of the main or boundary channel of Halls Stream, were still well defined on the ground. By means of a transit and tape traverse, the line was reestablished throughout its length as a series of straight lines tied to permanent reference monuments set along the shores and conforming as closely as practicable to the location of the course of the channel as it existed in 1845.



Granite post originally set to mark point on Vermont-Quebec boundary in 1849; reset in concrete base

### VERMONT-QUEBEC BOUNDARY

Along the section of the boundary from Halls Stream to the Richelieu River, surveyed originally by Valentine and Collins in 1771-72, the line was retraced by running straight lines between adjacent original boundary monuments found in place on the ground. A comparison was made of this traverse with the records of a similar traverse of 1845 to determine which monuments were in their original positions and could be accepted as fixed points on the boundary. One hundred and eleven of the one hundred and thirty monuments set by the boundary commission in 1845 and by Graham and Ord in 1849 were accepted as marking original boundary points, and as many as could be found of the other monuments, which had been moved or partially destroyed, were restored to their original positions. Many of the



Original granite monument (No. 646) set by the Commissioners in 1845 near Richelieu River on New York-Quebec line  
(See descriptive note, page 27)



Instrument piers of old astronomic station used in 1845; near Rouses Point, N. Y.

monuments were leaning or were loose in the ground, and later, when being reset in concrete bases, were moved slightly to positions on straight lines between the deflection points shown by the records of 1845.

The new values obtained for the angles at the 69 deflection points and the distances along the line between original monuments showed a close agreement with the results of the survey of 1845.

### THE NEW YORK-QUEBEC BOUNDARY

The retracement of this part of the boundary was made in 1902 by surveyors of the State of New York and surveyors of the Dominion of Canada acting under concurrent agreement of the two Governments. The retracement was governed solely by the positions of the cast-iron monuments which had been set to mark the line in 1845, rejecting only a few of the monuments which, by reference to the records of the survey of 1845, were found to have been moved from their original positions. Of the original 130 monuments, 118 were found in place.

A transit and tape traverse was run along or near the line, and offsets were measured to each monument. The distances and deflection angles between monuments were then computed from the traverse notes. It was found that they agreed closely with the corresponding distances and angles of the survey of 1845.

The resultant line as computed from the traverse was accepted as the final boundary line. The monuments were replaced with granite posts set at the sites of the original cast-iron monuments.

#### DESCRIPTION OF MONUMENT ON OPPOSITE PAGE

Original monument No. 646, illustrated on page 26, is a stone or granite shaft 6 feet 8 inches high, 1 foot square at the top and 1 foot 10 inches at the base. The monument is surrounded by an iron fence 5 feet 10 inches high, set in stone coping 1 foot above the ground. On the south side of the monument, beginning at the top, are inscribed the following lines: "Latitude 45-00-42.8," "J. D. Graham, Major Corps of Top. Engineers, U. S. Astronomer," "A. W. Whipple, Lieut. Corps of Top. Engineers, Assistant," "1845," "Boundary," "Treaty of Washington of Aug. 9th 1842." On the west side, on appropriate sides of a vertical center line consisting of a rope carved on the surface of the stone, appear the words "Canada" and "New York." On the north side, reading from the top, are the lines "Longitude west of Greenwich 73-21-27 or 4<sup>h</sup>-53-25.8," "J. D. Graham, Major Top. Engineer, U. S. Astronomer" "1845." On the east side, reading vertically, is the word "Boundary," and on the appropriate sides of the carved rope which continues over the top of the monument from the west side, are inscribed "Albert Smith, U. S. Commissioner," and "J. B. B. Estcourt, L. T. Co., H. B. M. Commissioner."



## FIELD OPERATIONS

The field work of retracing, remonumenting, locating, and mapping the boundary from the source of the St. Croix River to the St. Lawrence River was begun in the summer of 1902, when a joint resurvey was made of that portion of the boundary between the Province of Quebec and the State of New York by the State of New York and the Dominion of Canada "without a formal treaty agreement but by the joint and concurrent action of the Governments of the United States and Great Britain."<sup>5</sup>

Work was also carried on previous to the treaty of 1908 along the portion of the boundary between Quebec and Vermont, in 1906 and 1907. These latter field operations were under the direction of the commissioners who were supervising the work in connection with the demarcation of the boundary between Alaska and Canada. Later, these commissioners were also appointed to carry out the provisions of the treaty of 1908, and field operations were continued by them to completion in 1922, without any break in progress or material changes in methods.

<sup>5</sup> See Appendix II, p. 314; also Article III, treaty of 1908, p. 4.



Cross Lake Rapids, St. Francis River

Operations on the boundary were conducted by joint parties until the fall of 1910, by which time, in addition to the work along the New York-Quebec and Vermont-Quebec lines, the survey had been extended from the source of the St. Croix River to the St. Francis River. It was then decided, owing to the natural difficulties of transportation in the country to be traversed, that the work could be carried on more efficiently by dividing the remainder of the line into sections, to be allotted to independent Canadian and United States parties, respectively, apportioning the total amount of field work as equally as possible.



Pack train on Highlands boundary

Accordingly, in 1911 a Canadian party worked southward from Lake Pohenagamook along the St. Francis River, and a United States party worked north from Cross Lake. In 1912 a Canadian party worked along the line from monument 187 to monument 222, and a United States party operated from Lake Pohenagamook to monument 187 and from monument 222 to the vicinity of St. Pamphile. Similarly, in 1913, a Canadian party began work on the Southwest Branch of the St. John River, while a United States party completed the work on the Southwest and South Lines from the point where they had left off in 1912 to the Southwest Branch of the St. John River. In 1914 the Canadians finished the work on the Southwest Branch of the St. John River, and the United States parties began work on the boundary along Halls Stream, working northward from Beecher Falls, Vt.



Transportation in Arnold River Valley; Highlands boundary, 1916

In 1915 each section of the commission put two parties in the field. One Canadian party did the major control triangulation on the St. Francis and St. John Rivers, while that Canadian party which had been operating on the Southwest Branch of the St. John River in 1914 began work along the eastern portion of the Highlands



boundary. The United States party which, during the previous season, had been on Halls Stream, completed that work to the source of the stream, and a second party of the United States section began at monument 402 on the Highlands boundary and worked westward to monument 431. In 1916 a Canadian party completed the triangulation from the St. John River to the St. Croix River, and the party on the Highlands boundary continued westward to monument 347, and two United States parties completed the surveys along the Highlands from monument 431 to the head of Halls Stream.

Between 1917 and 1922 the Canadian parties completed the work along the Highlands westward to monument 402 and triangulated the Vermont-Quebec and New York-Quebec lines from Halls Stream to the St. Lawrence River. United States parties made a topographic map of the New York-Quebec line, relocated and marked the boundary in the old channels along Halls Stream, and reset the old monuments on the islands of the St. John River, and a joint party of Canadian and United States surveyors completed the control of the Southwest Branch of the St. John River and made a final field location of the boundary in the stream.

Along much of the boundary, the work of the field parties was materially delayed by difficulties due to transportation. For nearly half the length of the land portion of the boundary from the source of the St. Croix River to the St. Lawrence River, the line traverses a heavily wooded country of rolling hills and mountains. Particularly is this true of the entire 297 miles from Lake Pohenagamook to the head of Halls Stream. This country had been seldom entered except by logging companies operating in the winter over frozen snow roads, which were practically impassable during the field seasons of the surveying parties, generally from the middle of May to the middle of October. The surveying camps on or near the boundary were, therefore, almost inaccessible except by the use of pack trains and teams, operating over trails and tote roads which had to be cut through the underbrush. Also, as a considerable part of the line follows the crest of the watershed, the work of getting materials to the monument sites often involved long hikes and considerable back packing beyond points reached by the horses.

The more important of these and other problems incidental to the work of carrying on the survey are set forth in other chapters of the report, or are included in the accounts of the several seasons' field work which follow.

#### SEASON OF 1902—THE NEW YORK-QUEBEC BOUNDARY

An act passed by the Legislature of the State of New York in 1887 required the State engineer and surveyor to make an examination of the boundary lines of the State that year and every third year thereafter. In 1890, the examination of the international portion of the New York boundary was participated in by an officer appointed by the Canadian Government. It was discovered then, and in subsequent examinations, that very serious deterioration of the monuments had occurred, showing a progressive falling off in their condition and the necessity for repairs and renewals.

On October 29, 1900, at the request of the New York State engineer and surveyor, the Secretary of State wrote to the British ambassador, calling attention to



the condition of the New York-Quebec boundary monuments, and inquiring whether the Government of Canada would be "willing to join in having these monuments replaced and put in proper and first-class condition."

A concurrence of views concerning the matter was reached in August, 1901, and it was arranged that the restoration of defective monuments marking the New York-Quebec boundary should be proceeded with under the joint direction of the State engineer of New York and a representative of the Canadian Department of the Interior.

Pursuant to this arrangement, the re-marking of the boundary was undertaken by Edward A. Bond, State engineer and surveyor, as commissioner for the State of New York, and William F. King, chief astronomer of the Department of the Interior, commissioner for Canada.

The commissioners decided, before proceeding with the replacing of the monuments, to have a careful examination of existing monuments made; and for that purpose, and for such further field operations as might be found necessary, appointed representatives, the State engineer of New York appointing Mr. H. P. Willis, of Schenectady, and the Canadian commissioner appointing Mr. C. A. Bigger, of Ottawa, in October, 1901. These gentlemen personally inspected the line in October and November, 1901. Beginning at monument 645, near the west bank of the Richelieu River, they proceeded westward along the boundary to the St. Lawrence River, inspecting each monument and making careful note of its condition. Their report showed that only 10 of the 130 monuments were in perfect condition; that is, intact, plumb, and solidly set.

After consideration of their report, it was thought advisable to replace all the old monuments with new ones, using for this purpose granite posts of uniform design set in 3-foot concrete bases. It was also decided to make a precise survey of the line for the purpose of determining accurately the positions of the monuments.

A contract for furnishing the granite monuments was awarded, during the winter of 1901-2, to a firm at Hardwick, Vt., and after the monuments had been inspected at the granite works they were delivered early that year to convenient railway stations along the line. In May the representatives met at Three Rivers, Quebec, and made out a statement of the number of men required, the tools necessary for remonumenting the line, and the surveying instruments to be furnished,



Type of new granite post monument set on New York-Quebec line in 1902

which they submitted to the commissioners, who approved of the arrangements and directed them to commence the work as soon as possible.

On June 3 the commissioner for Canada and his representative, and the representative of the commissioner for the State of New York, met at Rouses Point, N. Y., and concluded the necessary arrangements, such as collecting the materials and hiring the teams and laborers, for executing the work westward from that point.

It was supposed that the monument building would not progress as rapidly as the surveying; consequently, at the beginning, the energies of the party were centered on that branch of the work. The first monument (No. 647) was built on June 9. The organization of the monumenting party was as follows: One foreman (expert concrete worker), two teamsters, and five laborers. In addition to the above, other laborers and teams were hired when necessary. A detailed description of the monuments and the work of the monumenting party, taken from the report of the representatives of the commissioners,<sup>6</sup> will be found elsewhere in this report under the chapter "Monuments and monumenting."

The surveying party, which included one assistant surveyor, four chainmen, and five axmen, ran a traverse consisting of a succession of straight lines, run with transit and steel tape, near the boundary and so placed as to make each course of the traverse as long as possible, keeping near the boundary line and yet avoiding, wherever necessary, orchards, buildings, and natural obstructions. The direction of each course of the traverse was determined by azimuth observations. The positions of the monuments were determined by measuring offsets from points on this traverse to the monuments. Observations for latitude were made at several important stations, and subsequently, in 1917 and 1923, the geodetic positions of the monuments were determined on the North American datum by tying this traverse at several points to the Canadian primary scheme of triangulation adjacent to the boundary on the north.

The new monuments were set and located on the sites of the original cast-iron monuments, which in every case were broken up and used in the concrete bases of the new ones. Besides replacing the old monuments, 16 additional new monuments were set to mark important road crossings and other intermediate points on the line. These intermediate monuments were appropriately numbered by stamping on the concrete base of each the number of the preceding original monument and the letter A.

The work ran through the field season of 1902 and was completed on June 6, 1903.

Since then the new monuments set in 1902 have been inspected twice by representatives of the International Boundary Commission and the State engineer and surveyor of New York. The first of these joint inspections—in addition to the regular three-year inspections of the line made by the State of New York—was made in 1910 by Mr. M. F. Cochrane, D. L. S., representing the Canadian section of the International Boundary Commission, and Mr. H. J. Stabile, of the New York

<sup>6</sup> See Report of the Chief Astronomer and Boundary Commissioner, Department of the Interior, Dominion of Canada, 1904, pp. 20, 21, and 32-34; and Annual Report of the New York State Engineer and Surveyor, 1902, pp. 71, 72, and 99-102.



State engineer's office. The second inspection was made in September, 1916, by Mr. J. D. Craig, D. L. S., engineer to the Canadian section of the commission; Mr. James H. Van Wagenen, engineer to the United States section of the commission; and Mr. H. F. Eagan, representing the State engineer and surveyor of New York.

On each of these inspection trips it was noticed that a marked and progressive depreciation had taken place in the condition of the monuments; a number of them had been heaved by frost and were leaning; one was found to have been broken by heat from the burning of a building close by; others were hidden by dense underbrush which filled the vista in many places.

The results of these inspection trips were



View looking east along New York-Quebec line, near monument 653



Granite monument 721 broken by heat from burning building

that in 1917 the boundary commissioners, cooperating with the State engineer of New York, reset and repaired 18 monuments,<sup>7</sup> erected one additional monument, No. 726-A, to mark a road crossing of the boundary between monuments 726 and 727, and reopened several miles of vista along the line.

The personnel of the field parties operating along the New York-Quebec boundary during the season of 1902 was as follows:

For His Britannic Majesty: Chief of party, C. A. Bigger, D. L. S.; assistants, C. A. Bourget, D. L. S., F. W. O. Werry.

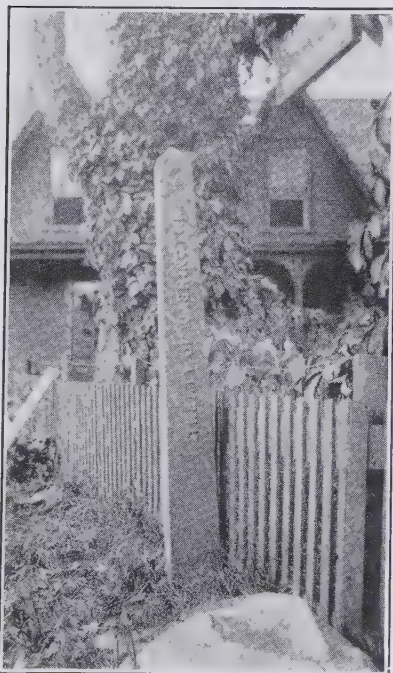
For the State of New York: Chief of party, H. P. Willis.

<sup>7</sup> See "Field operations," 1917, p. 77, and "Monuments and monumenting," p. 111.



## SEASON OF 1906—THE VERMONT-QUEBEC BOUNDARY

The correspondence between the United States Government and the Canadian Government which resulted in the agreement to remonument and resurvey the New York-Quebec Boundary in 1902 also resulted in the importance of re-marking and mapping the entire line from the Richelieu River eastward to the waters of the St. Croix River being recognized by both Governments; and it was agreed, where the work to be done involved no disputed question as to the course or location of the line, but required only the restoration of original monuments and the erection of new ones in order to render more effective the boundary as already surveyed and marked,



Monument 519, Vermont-Quebec line, before it was reset



Typical condition of monuments at time of joint examination, 1905

that it was not necessary to enter into a formal convention for that purpose, and that an informal agreement making provision on both sides for the joint performance of the work was all that was required.

This led to the first step being taken toward the resurvey and more complete demarcation of the Vermont-Quebec line. On February 9, 1905, the Secretary of the Treasury of the United States addressed a letter to the Secretary of State setting forth the need of a better demarcation of the Vermont-Quebec portion of the international boundary and suggesting that the work should be undertaken by a joint commission representing the United States and Canada. The matter was referred to the Superintendent of the Coast and Geodetic Survey for an expression of his views of the best method of meeting the necessity of the case, and on February 21, 1905, he transmitted a letter to the Secretary of State suggesting that an examination be made of the monuments along this portion of the boundary.

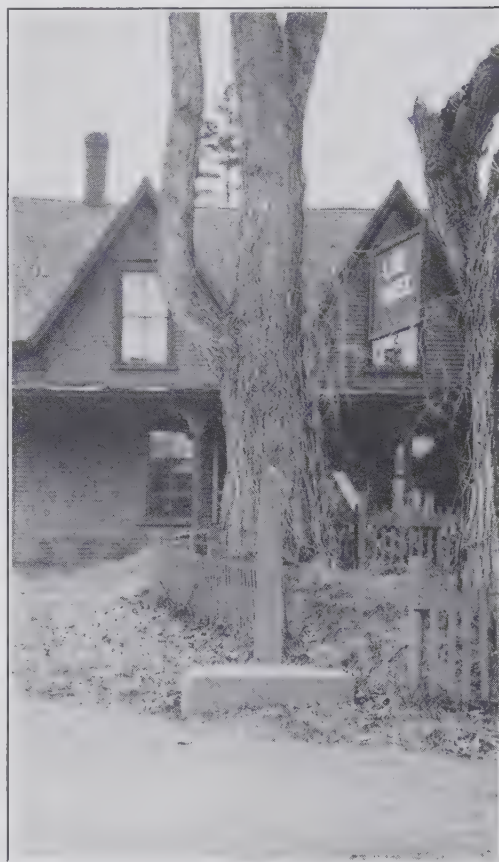


The Canadian Government assented to a proposition that a joint examination should be made, and Mr. J. B. Baylor, assistant, United States Coast and Geodetic Survey, was appointed to represent the United States, and Mr. G. C. Rainboth, D. L. S., to represent Canada. These representatives were later directed to extend their examination to include the entire portion of the boundary from the Richelieu River to the source of the St. Croix River.

This examination was carried out during the summer of 1905, and the representatives made a report to their Governments under date of February 22, 1906, giving a general review of the condition of the boundary from the Richelieu River to the source of the St. Croix River, with recommendations as to what should be done.



Monument 505, at time of joint examination of the boundary prior to treaty of 1908. In this photograph is Frederick W. King, son of British Commissioner King. He was killed in action near Arras, France, August 26, 1918



Monument 519 after it was reset

The report strongly urged that this entire line be resurveyed and remonumented.

Pursuant to these recommendations, under an informal agreement between the two Governments, Mr. O. H. Tittmann was appointed commissioner for the United States and Dr. W. F. King, His Britannic Majesty's commissioner. At a meeting of the commissioners, held in Ottawa in July, 1906, which was also attended by the engineers who had made the inspection, it was decided to resurvey that part of the line forming the boundary between Vermont and Quebec, and the work of making the resurvey was placed in charge of the inspecting engineers, who were directed to commence operations at as early a date as possible. The engineers and their assistants reached the field on August 1 and made camp at Beecher Falls, Vt., where a joint party

was organized. After considerable difficulty in obtaining the necessary laborers, work was begun at that point about August 10.

Like the New York-Quebec boundary, the portion of the boundary from Beecher Falls to the Richelieu River was a part of the line originally surveyed by Valentine and Collins in 1771-74, which was accepted at that time as being the forty-fifth parallel of latitude. However, it diverged considerably from the true parallel, and, as resurveyed in 1845, consisted of a series of straight lines which were marked at deflection points by monuments set diagonally, and at intermediate points by monuments set square with the line.

The old cast-iron monuments were filled with concrete and set in concrete bases on their old sites, except in a few cases where this was found to be impossible or inadvisable. Additional new monuments were placed along the line to mark important points, such as at the so-called "line houses" and at railroad crossings. These new monuments were blocks of granite, each 10 inches square, projecting about 1 foot above the concrete base in which it was set. All monuments were set square with the line.

The survey operations consisted of opening a vista 20 feet wide where the line passed through woods, measuring the distances along the line between monuments with stadia and steel tapes, observing the angles at the monuments marking deflection points, running levels along the line from a bench mark on the Maine Central Railroad at Beecher Falls, and making a topographic map on a field scale of 1:15,840 with plane table and stadia of a strip of country one-half mile wide on each side of the boundary.

The party discontinued work and disbanded for the season at a point near Derby Line, Vt., on November 15.



Survey camp near Lyster Lake, late in fall of 1906



The personnel of the field parties for the season of 1906 was as follows:

For His Britannic Majesty: Chief of party, G. C. Rainboth, D. L. S.; assistants, F. H. Mackie, D. L. S., G. L. Rainboth, A. J. Rainboth, O. Sills, B. Foley.

For the United States: Chief of party, J. B. Baylor; assistants, O. B. French, R. H. Blain, J. P. Locke.

### SEASON OF 1907—THE VERMONT-QUEBEC BOUNDARY

The joint party resumed operations in 1907 where work had been discontinued the previous fall, near Derby Line, Vt.

The topographic surveying in 1906 had not proceeded as fast as the monumenting and line cutting. For this reason, the strength of this part of the party was doubled in 1907 to complete the mapping left unfinished the previous year and to



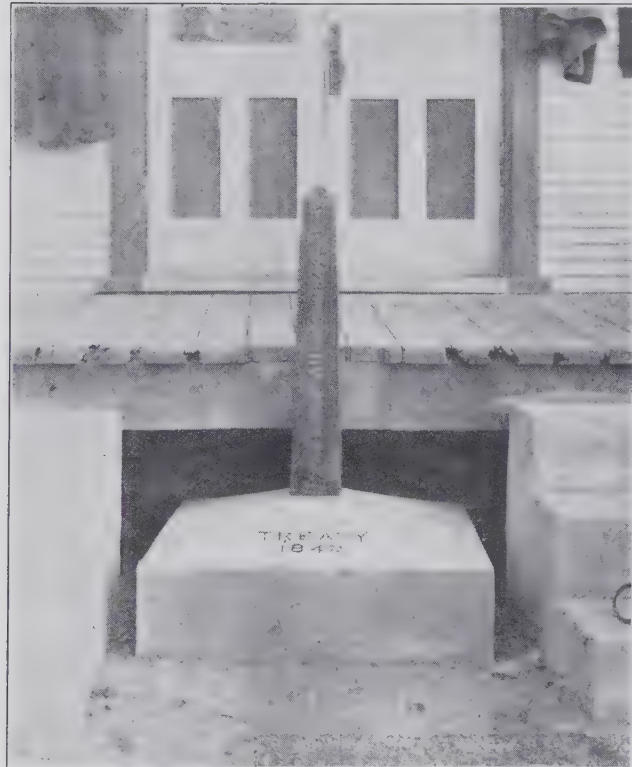
Monument 621, Vermont-Quebec line, before it was reset

have it keep pace with the other work of the party.

In general, operations were carried on in accordance with the plan followed during the previous year.

The party, when fully organized, consisted of two monumenting crews, each of which included a foreman and three or four hands with a team and wagon or drag, two topographers with the necessary rodmen and axmen, one surveyor in charge of a line location party of several chainmen and rodmen, a leveling party, and a vista-cutting gang.

Besides resetting all the old monuments along the Vermont-Quebec line, the monumenting parties built three large monuments of reinforced concrete to replace the monuments on the shore of Missisquoi Bay, Lake



Monument 621, after it was reset

Champlain. Also, near the end of the season, it was found that monument 645 on the west bank of the Richelieu River, which had been reset in 1902, had been destroyed by floating ice. This monument was not rebuilt; but an intermediate monument, No. 645-A (a large concrete structure of the same type as the three monuments set on Missisquoi Bay) was built on the line about 200 feet west of the river.

The line location, vista cutting, leveling, and topographic mapping were completed as far west as the Richelieu River.

The party lived in camp, which was moved along the boundary as the work progressed. Transportation was comparatively easy. The country, though quite hilly—in fact, in some places, even mountainous—

was easily accessible, as there are a number of prosperous farming and dairy communities and several flourishing manufacturing centers on both sides of the boundary.

The field work of surveying and marking the Vermont-Quebec boundary was completed early in November, and the party was disbanded.

The personnel of the party operating during the season of 1907 was as follows:

For the United States: Chief of party, J. B. Baylor; assistants, R. H. Blain, C. H. Van Orden, J. P. Locke.

For His Britannic Majesty: Chief of party, G. C. Rainboth, D. L. S.; assistants, G. L. Rainboth, A. J. Rainboth, A. M. Phillips, W. J. Sharpe, B. Foley.

#### SEASON OF 1908—THE NORTH LINE, NEW BRUNSWICK-MAINE

The work on the boundary between Vermont and Quebec having been completed in 1907, it was decided that operations should begin, in 1908, on the resurvey of the North Line, the old exploratory line of 1817-18, which runs northward from the source of the St. Croix River to the St. John River and which, by the



Type of intermediate monument used on Vermont-Quebec line



treaty of 1842, became a part of the international boundary between the Province of New Brunswick and the State of Maine.

This portion of the boundary consists of a series of straight line courses of various lengths, all running approximately due north. Naturally, therefore, the system of survey adopted by the joint party in 1908 was practically the same as that used along the Vermont-Quebec line during the previous season. The old vista was reopened to a width of 20 feet, the several courses of the line were measured both with stadia and steel tape, and the angles at the deflection points were carefully measured. A topographic map of a strip of country one-half mile wide on each side of the line was made with plane table and stadia on a field scale of 1:10,000, and a line of levels was also carried along. The old monuments were reset, square with the line, in concrete bases, and new monuments, consisting of granite blocks 10 inches square and about 12 inches high, were set in concrete bases to replace original monuments which were broken or lost and to mark the line on each side of all the "line houses." Intermediate monuments of this type were also placed so that each monument is intervisible with the monument immediately north and south of it.

As during the previous season, the party lived in camp, which was moved often enough to provide the men with living quarters close to the work as it progressed. The country was well settled, and transportation, which was by teams and wagons, could be easily obtained whenever necessary.

Favorable weather throughout the season enabled good progress to be made, and by the end of October the vista along the line was opened throughout the entire distance to the St. John River. The stadia and steel tape measurement of the line was also completed, but smoke from forest fires and the burning of potato stalks seriously interfered with the more precise part of the work, so that it was impossible to complete the



Boundary monument and vista, on North Line



lining-in of all the monuments, and this work, together with some of the topographic mapping, was left until the following season.

The party withdrew from the field on November 20.

The personnel engaged on the work during the season of 1908 was as follows:

For His Britannic Majesty: Chief of party, G. C. Rainboth, D. L. S.; assistants, M. F. Cochrane, D. L. S., A. J. Rainboth, G. L. Rainboth, I. R. Pounder, C. R. Westland, W. J. Sharpe, B. Foley.

For the United States: Chief of party, J. B. Baylor; assistants, R. H. Blain, J. P. Locke.

#### SEASON OF 1909—THE BOUNDARY ALONG THE ST. JOHN RIVER

Field operations were resumed early in May, 1909, the first work being the completion of the northerly portion of the North Line which the party was unable to finish during the season of 1908. The first camp was established near the point where the North Line intersects the St. John River, about 3 miles above Grand Falls, New Brunswick.

When the survey along the St. John River was undertaken, the joint organization was divided into two parties, a Canadian party operating on the Canadian side of the river and a party of United States surveyors on the United States side. Reconnaissance, signal building, and triangulation were done by each party on its own side of the river. All the leveling was done by the Canadian party, and the monumenting on both sides of the river was done by the Canadian concrete fore-



"Line house" on North Line at monument 49



Grand Falls of St. John River, New Brunswick,  $2\frac{1}{2}$  miles east of boundary

man. The rest of the work, which included principally the making of a topographic survey of the river and the adjacent country, was done in sections, each including about  $3\frac{1}{2}$  miles of the river. Each party did all the topographic work of each alternate section on both sides of the river.

A railroad on each side of the river and good highways provided ample and convenient transportation, so that the camps could be moved often and kept close to the general vicinity of the work, which proceeded westward along the river valley toward the mouth of the St. Francis River.

The triangulation which located the boundary reference monuments and furnished the control for the topographic map was of minor grade, the figures of which straddled the river, the stations being located at suitable points on each side of the



Boundary survey camp on St. John River at Ste. Anne de Madawaska, 1909



river valley. The triangulation was started about 6 miles west of Grand Falls from a measured base, which formed the side of one of the quadrilaterals. The lengths derived from this base were checked during the season by two other similar bases, one near Ste. Anne de Madawaska, New Brunswick, and the other about 3 miles above Edmundston, New Brunswick. The three bases were measured along tangents on the newly established grade of the Canadian National Railway. Near the end of the season, the triangulation was tied for azimuth and position to a Canadian astronomic station at Edmundston, New Brunswick. In 1915 and 1916, this triangulation was tied to the major triangulation connected with primary stations of the Geodetic Survey of Canada and the United States Coast and Geodetic Survey, and, when adjusted to that work, furnished the final control of the boundary along the St. John River.

The topographic survey was made with plane table and stadia on a field scale of 1:5,000. The maps covered an area which extended one-half mile on each side of the river and showed the highways, railroads, reference monuments, houses, and fence lines. Elevations for the topographic work were furnished by a line of levels run along the Canadian Pacific Railway, which closely follows the river on the Canadian side. At that time no precise bench marks of the geodetic surveys of either country had been established along the river, hence the datum used for the line of levels was that of the Canadian National Railway, which was then under construction. This datum has since been found to have a fairly uniform error of about 5 feet below the true mean sea-level datum, and this fact is noted on the boundary maps of this portion of the line.

Boundary reference monuments of concrete were constructed at suitable points along the shores, and, in general, were located at triangulation stations.

The season's operations, which included some 40 miles of triangulation, topography, and monumenting along the river, were greatly hampered by an unusual amount of rainy weather. During July and a part of August scarcely a day passed without rain, which was frequently continuous for two or three days at a time.

The parties withdrew from the field during the first week of November, and the outfits were stored for the winter at Fort Kent and Edmundston.

The personnel of the two parties was as follows:

For His Britannic Majesty: Chief of party, G. C. Rainboth, D. L. S.; assistants, G. L. Rainboth, I. R. Pounder, J. A. Pounder, W. M. Dennis, B. Foley.

For the United States: Chief of party, J. B. Baylor; assistants, R. H. Blain, F. H. Brundage, W. B. Gilmore, J. P. Locke.

#### SEASON OF 1910—THE BOUNDARY ALONG THE ST. JOHN AND ST. FRANCIS RIVERS

The survey of the remainder of the boundary along the St. John River in 1910 was simply a continuation of the procedure followed during the previous season.

The parties went into camp early in May, the Canadian surveyors near Edmundston, New Brunswick, and the United States party on the south side of the river near Frenchville, Me. The work progressed satisfactorily and the mouth of the St. Francis River was reached early in September.





Boundary survey camp at mouth of St. Francis River, 1910

At this point the character of the work had to be modified in order to meet the new conditions encountered in the narrow, heavily wooded valley of the St. Francis. For the first 8 miles, the main scheme triangulation stations were established on the tops of the ridges bordering the river valley, and from these stations the boundary reference monuments along the stream were located by subsidiary figures, but when the head of Glazier Lake was reached, the main scheme was narrowed to the limits of the river banks.

The lengths of the triangulation lines were checked by the measurement of two base lines, one at Clair, New Brunswick, and one at St. Francis, Me.



Ferry between Canada and United States on St. John River

The leveling, as in the previous season, was done by the Canadian party and was based on the bench marks of the Canadian National Railway. From Caron Brook, New Brunswick, where this railway leaves the valley of the St. John, the levels were continued along the Temiscouata Railway to its terminus at Connors, New Brunswick, and from that point, along the highway to the foot of Glazier Lake. From there, the levels were carried to the head of the lake, and thence up the dead water to the foot of Cross Lake Rapids, by simultaneous readings of the water level at each end of the several lakes or ponds. These bodies of water are separated by falls of varying height, and around these the leveling was done with an instrument as usual.

The method of mapping the river, lakes, roads, and small clearings in the valley of the St. Francis was the same as had been used in the open country along the St. John, but the contouring in this densely wooded region could not efficiently be done by means of the stadia. Instead, the positions and elevations of conspicuous trees on the hillsides were determined by plane table intersections from stations along the shores of the river and lakes, and the contours were sketched to conform to these determinations. When the season's work terminated at the end of October at Cross Lake, the Canadians sent their outfit down river to be stored at St. Francis, Me., while the United States party moved to the head of Beau Lake by water and stored their equipment with the owner of a small farm there.

The personnel of the field parties for the season of 1910 was as follows:

For His Britannic Majesty: Chief of party, G. C. Rainboth, D. L. S.; assistants, G. L. Rainboth, D. L. S., I. R. Pounder, J. A. Pounder, B. Foley.

For the United States: Chief of party, J. B. Baylor; assistants, R. H. Blain, F. H. Brundage, L. J. Young, J. P. Locke.

#### SEASON OF 1911—THE BOUNDARY ALONG THE ST. FRANCIS RIVER AND THE SOUTHWEST LINE

By agreement between the chiefs of the two parties, the United States party took up the work at Cross Lake where it had been discontinued the previous season, and the Canadian party worked downstream toward that point from Lake Pohenagamook.

The triangulation consisted of small quadrilaterals carried along the banks of the river, expanding to larger figures only along Beau Lake. This part of the work proved to be extremely slow and laborious, particularly along the upper portion of the river, the banks of which for the most part were low and flat and covered with a dense growth of fir and alders which made it necessary to chop out almost the entire lengths of the lines.

This flat, wooded country also made it necessary to adopt special methods of mapping the topography. In the woods and underbrush the elevations were determined by hand levels and aneroid barometers and the contours located by compass and tape traverses, which were tied to the triangulation or to plane table and stadia traverses which were run along the roads, streams, and railroads.

The water levels which had been observed as far as Cross Lake during the previous season were continued to the head of Beau Lake and there checked by a





Boundary survey camp near Lake Pohenagamook, 1911

line of  $\Upsilon$  levels between that point and a bench mark of the Canadian National Railway at Blue River, Quebec. The vertical control for the work of the Canadian party along the upper part of the river was furnished by bench marks of the Canadian National Railway, which closely parallels the boundary.

The construction of the boundary reference monuments along the river was done by a Canadian subparty working in conjunction with the two main parties. These monuments were of concrete and of a design similar to those used on the St. John River.

The United States side of the St. Francis River is entirely uninhabited, and there are no roads other than lumber roads; while on the Canadian side there are scattered farms between the mouth of the river and the outlet of Glazier Lake, to which a fairly good road leads from Connors, New Brunswick. Farther up, the Canadian National Railway follows the river closely between Blue River and Lake Pohenagamook, along which section there is also a highway connecting scattered settlements. The principal settlement at Lake Pohenagamook is along the boundary west of the



Plane-table party on St. Francis River, 1911



lake and is mostly in Canada. Practically all of the settlers of the region are French Canadians.

While the survey of the St. Francis River was being made, a subparty of nine men under a foreman was engaged in opening that portion of the boundary known as the Southwest Line, which extends from the outlet of Lake Pohenagamook to the Northwest Branch of the St. John, at the village of Lac Frontiere, Quebec. This straight line was marked in 1845 by iron monuments set at intervals of a mile or less, so that the axmen did not require a surveyor to enable them to follow the line. The chief difficulty was the problem of transportation. Since no settlements approach this line until St. Pamphile is reached, 40 miles from Lake Pohenagamook, it was necessary for this vista-cutting party to handle all supplies on jumpers over the newly cut line. By the end of October the line was cleared for a distance of nearly 40 miles, reaching a point near St. Pamphile, where the subparty was paid off and disbanded.

In the meantime the surveys on the St. Francis were being completed, the United States and Canadian parties reaching a point of junction near the foot of Kelly Rapids, about 2 miles above the village of Blue River. The parties disbanded on November 10, and the camp equipment was stored at Lake Pohenagamook.

The personnel of the field parties for the season of 1911 was as follows:

For His Britannic Majesty: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., I. R. Pounder, J. A. Pounder, B. Foley.

For the United States: Chief of party, J. B. Baylor; assistants, R. H. Blain, F. H. Brundage, J. P. Locke, J. Mercier.

#### SEASON OF 1912—THE SOUTHWEST LINE

The United States and Canadian parties went to the field between May 15 and May 20 and camped at Lake Pohenagamook. Unfavorable weather resulted in little being accomplished before the 1st of June.

The chiefs of parties, Messrs. J. B. Baylor and Thomas Fawcett, agreed that it was again advisable to allot to each party a portion of the line sufficiently large to provide continuous work for the season so as to avoid the necessity of either party making long moves to other parts of the line. The commissioners approved this recommendation, and accordingly, the United States party, after completing their share of the work near Lake Pohenagamook, moved by wagon and rail to St. Pamphile, Quebec, from which point they worked eastward, while the Canadians continued westward to meet them.

The Southwest Line was originally monumented in 1845, with cast-iron monuments projecting 3 feet above the ground, set at intervals of 1 mile or less. The line as surveyed in 1844 was found to be practically a straight line. The monuments, therefore, before being reset in concrete bases, were lined-in between intervisible monuments on the crests of distant hills. The distances between monuments were then determined by the two parties by invar tape measurements, and such angles as were found to exist between the courses of the line from ridge to ridge were carefully measured with theodolites.



Boundary survey camp on Southwest Line, 1912

The monumenting consisted of resetting the old cast-iron monuments in 3-foot concrete bases and in addition setting a few new intermediate monuments of concrete. This work, in 1912, was done by a subparty of the Canadian section of the commission, working in conjunction with the two main parties.



Lunch time, Southwest Line, 1912



Levels for controlling the topography and determining the elevations necessary for the invar taping were carried along the line from two bench marks of the Canadian National Railway, one near Lake Pohenagamook and the other near St. Pamphile. The level lines were checked on each other when the two parties joined work at the end of the season.

The topography of a strip of country extending one-half mile on each side of the boundary was mapped on a field scale of 1:10,000 by running traverses with prismatic compass, hand level, and stadia along streams and old logging roads and through lines cut at right angles to the boundary about 1,000 feet apart. This information was supplemented by sketches made in the field and transferred immediately to the field sheets. Plane tables were not used by either party during the season of 1912.

The control for the season's work was based upon the invar tape traverse of the boundary and a geodetic position and azimuth determined at monument 189 (Canadian primary triangulation station "Frontier") during the season by the Geodetic Survey of Canada.

A United States subparty continued the vista cutting westward along the line from the point reached the previous season near St. Pamphile.

The chief problem of each party in 1912 was that of transportation. Supplies were brought to the work on jumpers, which were dragged along old logging roads or over trails cut through the timber. The country, especially on the eastern part of the line, was rough and hilly, and in many places a team could handle loads of only a few hundred pounds. A particularly wet season made the trails and roads almost impassable for horses, and took out several of the log bridges which had been rudely constructed over some of the larger streams.

About the end of October, the United States and Canadian parties made a junction of the work at a point about 4 miles west of East Lake. The parties then withdrew from the field, the United States party returning to St. Pamphile, where they stored their camp equipment, and the Canadian party going back to East Lake, to the head of which they took their equipment by scows and thence by wagons to storage quarters at St. Philippe de Neri.

The personnel of the field parties for the season of 1912 was as follows:

For His Britannic Majesty: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., I. R. Pounder, J. A. Pounder, B. Foley.

For the United States: Chief of party, J. B. Baylor; assistants, R. H. Blain, F. H. Brundage, J. P. Locke, J. Mercier.

#### SEASON OF 1913—THE SOUTHWEST AND SOUTH LINES AND THE BOUNDARY ALONG THE SOUTHWEST BRANCH OF THE ST. JOHN RIVER

The season of 1913 saw the completion of the two straight-line boundaries between northwestern Maine and the Province of Quebec, and a considerable part of the line along the Southwest Branch of the St. John River. To the United States party was assigned the portion of the boundary from the vicinity of St. Pamphile to the intersection of the South Line with the Southwest Branch of the



St. John River, while the Canadian party was to begin work upon a portion of the boundary which included the Southwest Branch of the St. John River and the Highlands as far west as Boundary Siding, the point where the boundary is crossed by the Canadian Pacific Railway.

The two parties went to the field about the middle of May, the United States party making their first camp near the Big Black River, a few miles west of St. Pamphile, Quebec, and the Canadian party, after shipping their outfit from St. Philippe de Neri, Quebec, where it had been stored for the winter, moving into camp on the Southwest Branch of the St. John River, about 10 miles from the village of St. Camille, Quebec.

The work of the United States party on the Southwest Line and the South Line was similar in most respects to that of the previous season, except that the topographic mapping was done by use of small plane tables, alidades, paraffined tapes, and aneroid barometers instead of compasses, hand levels, and stadia, which had been used in 1912. The tapes and aneroid barometers saved considerable line cutting, and the small plane tables enabled the topographers to sketch the contours in the field directly on the field maps. Elevations for this work were furnished by a line of levels which was continued westward along the boundary from bench marks established in 1912.

All the monumenting for both parties was done by a Canadian subparty.

The work of the Canadian party along the Southwest Branch of the St. John River was similar in most respects to the survey of the St. Francis River in 1910 and 1911. The river is narrow and winding, with flat banks covered with dense thickets of alders. Much line cutting was necessary in order to carry forward the small scheme of triangulation which determined the positions of the boundary



Boundary survey camp near Southwest Branch of the St. John River, 1913

reference monuments and furnished the control for a transit and stadia traverse of the river.

The triangulation was started from a base measured near the junction of the South Line and the Southwest Branch of the St. John River. As the work progressed, the triangulation was checked from time to time by two other bases and an azimuth determination. Later, in 1922, the survey of this portion of the boundary was tied to the primary triangulation stations of the Geodetic Survey of Canada and adjusted to the North American datum.

A line of levels was run to the boundary from a bench mark of the Quebec Central Railway, near St. Camille, Quebec. A bench mark was established at the junction of the South Line and the Southwest Branch of the St. John River, and the levels were carried westward along the river to determine the elevations of triangulation stations and boundary reference monuments and to furnish vertical control for the topography.

The mapping was done on a field scale of 1:5,000. The data for mapping the shore line of the river were obtained by transit and stadia traverses; the rest of the topography was taken with prismatic compasses, hand levels, and stadia, by traverses covering an area which extended about one-half mile on each side of the river. These compass and stadia lines were supplemented by notebook sketches, and the information was immediately transferred to field sheets on which the general map was compiled.

Transportation for both parties was a serious problem. The few bush roads which lead to the Southwest Branch of the St. John River were almost impassable, and the party on the river experienced considerable difficulty in bringing in supplies. The outfit was moved along the river with canoes and a flat-bottomed boat, built



Survey camp near Southwest Branch of the St. John River, 1913



by the party for that purpose at the first camp. On the Southwest Line the United States party was able to use wagons along the boundary vista until English Lake was reached. From this point to the Southwest Branch of the St. John River so many bogs and swamps were encountered that the wagons were abandoned in favor of mud sleds or jumpers. Many of the swamps had to be corduroyed before the horses and sleds could pass.

Everywhere the country through which this part of the boundary runs is difficult of access. From Lake Pohenagamook to a few miles west of East Lake the terrain is hilly to mountainous, and westward to Lac Frontiere it is slightly rolling, with intervening swamps. From Lac Frontiere to the Southwest Branch of the St. John River it is almost flat and is interspersed throughout with small swamps and bogs. Throughout the entire region the country is covered with a dense growth of timber and brush.

The only settlements along this stretch of the boundary are on the Canadian side. They touch the line at the villages of Estcourt, St. Pamphile, and Lac Frontiere, Quebec. Many lumbermen operating in northwestern Maine enter the country only through these points of access. Since the surveys were made in 1912 and 1913, the Quebec Central Railway, the terminus of which was at that time Ste. Sabine, Quebec, has been extended to Lac Frontiere, near the intersection of the Southwest and South Lines, and this portion of the boundary can now be reached by rail.

The United States party completed their assignment, the remaining work on the Southwest and South Lines, about September 25 and made a junction with the triangulation, topography, and leveling done by the Canadian party earlier in the season at the Southwest Branch of the St. John River. The party then moved their equipment by wagons and teams to Ste. Sabine, and thence by rail to Beecher Falls, Vt., anticipating work the following season along Halls Stream. The Canadian party continued work along the Southwest Branch of the St. John River until about November 7, when cold weather brought operations to a close. A log cache was built in the woods, the camp equipment was stored in it, and the party withdrew from the field.

The personnel of the field parties for the season of 1913 was as follows:

For His Britannic Majesty: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., J. A. Pounder, D. L. S., D. F. Chisholm, B. Foley.

For the United States: Chief of party, J. B. Baylor; assistants, W. C. Guerin, R. H. Blain, F. H. Brundage, J. R. Sinclair, J. Mercier.

## SEASON OF 1914 —THE BOUNDARY ALONG THE SOUTHWEST BRANCH OF THE ST. JOHN RIVER, THE HIGHLANDS, AND HALLS STREAM

In 1914 the work of the two sections of the commission on the boundary from the St. Croix River to the St. Lawrence was in widely separated localities. The Canadian party continued westward along the Southwest Branch of the St. John River, while the United States party started along Halls Stream. Between the parties was the long stretch of the boundary along the Highlands, toward which each was working.

## CANADIAN PARTY ON THE SOUTHWEST BRANCH OF THE ST. JOHN RIVER AND ON THE HIGHLANDS

About May 20, a small advance party of the Canadian surveyors made their way in to the cache built the preceding fall and moved the equipment by canoes and boat about 5 miles upstream to a point where a tote road from Ravignan, Quebec, crosses the river. Here the first camp of the season was pitched, and in the course of a few days the other members of the organization arrived with instruments and supplies and work was begun.

The control triangulation which was found so difficult to run through the flat forest-covered country along the river in 1913 was discontinued in 1914 in favor of a precise invar tape traverse. This furnished the control for the topographic mapping and a transit and stadia traverse of the river, and was the means of locating geodetically the boundary reference monuments.

This change in method proved to be most satisfactory. Long lines were cut through the woods in the general direction of the course of the river; and at inter-visible points where the traverse line changed direction, signals were erected and the deflection angles carefully measured with the same degree of accuracy as in triangulation. The courses were measured with invar tapes under uniform tension, supported at the ends by well-braced posts bearing strips of metal on which the tape lengths were marked. The elevations of the tops of the posts were determined by running the lines of levels of the survey along the traverse line, using the tops of the posts as turning points. The azimuth of the traverse was checked during the season by two astronomic observations.

Boundary reference monuments of design similar to those used on the St. Francis River were set along the Southwest Branch of the St. John River. The



On the Southwest Branch of the St. John River, 1914



monuments on one side of the river were set at points on the precise traverse line, while those on the opposite side were located by offsets measured from the precise line with the same degree of accuracy of distance and direction as was used on the line itself. The monuments consist of concrete blocks, each about 10 inches square, and 1 foot high, set in a 3-foot concrete base extending 3 feet or more below the surface of the ground. Each reference monument was designated by a number stamped on the concrete surface of the base.

The levels were checked during the season by a line run out about 12 miles to a bench mark on the Quebec Central Railway at the village of Ste. Rose, Quebec.

The topographic mapping was done by the same methods employed by the Canadians in 1913. A series of traverses was made with hand levels and stadia, supplemented by notebook sketches, covering an area one-half mile wide on each side of the boundary.

The survey of the Southwest Branch of the St. John River was completed about the middle of September, and work was immediately begun by the Canadian party on the eastern end of the boundary along the Highlands, which joins the river portion of the boundary at Little St. John Lake.

The boundary along the Highlands had been originally marked by a vista through the timber and by cast-iron monuments of the type used elsewhere on the line. The monuments had been located by independent traverses run along the crest of the watershed by the British and United States officers, respectively, of the survey of 1844-45.

As this part of the Highlands boundary traverses a heavily wooded country of insufficient relief for the economical execution of triangulation, it was decided that the most feasible means of carrying forward the control would be by precise traverse. Accordingly, the precise line along the Southwest Branch of the St. John River was continued westward in long courses laid to fit as closely as possible the general direction of the boundary along the crest of the watershed, and the positions of the cast-iron monuments were determined on North American datum by offsets from the precise traverse line. The boundary line between monuments was then run with transit and tape, using the distances and deflection angles given in the notes of the original survey of 1845, corrected to make the boundary traverse fit the positions of the monuments as determined by the precise control.

The work of locating the monuments was kept well in advance of the other work, in order to furnish without delay the data for adjusting the old survey notes of the boundary line between monuments. It was frequently found that angles and distances in the old notes were inaccurate and that the line when run between a pair of monuments would not fall within the marks of the old vista or on the crest of the watershed, and that corrections were necessary. For this reason, all the line location was kept well ahead of the monumenting, vista cutting, and topographic mapping, in order that when discrepancies were encountered the time required for making the relocation would not delay the work.

The old cast-iron monuments were filled with concrete and reset in 3-foot concrete bases, and the turning points of the boundary between iron monuments were marked by placing at each point a monument consisting of a 3-inch bronze disk,

set in a concrete-filled section of 4-inch vitrified sewer pipe, which was planted in the ground bell end down so that the top end bearing the disk was flush with the surface. Where the turning points came on outcropping ledges, the disks were set with cement in solid rock. On each disk was stamped the number of the turning point, numbering consecutively westward along the line from the nearest cast-iron monument on the east. On the concrete base of each cast-iron monument were stamped "Treaty 1842," the date the monument was reset, the number of the monument, and, on the appropriate sides, "U. S." and "Canada." This method of monumenting



Special type of cast-iron monument, No. 318, on Highlands, near source of Southwest Branch of St. John River



Typical cast-iron monument as reset along the Highlands

was used throughout the Highlands in subsequent years by all parties.

The Canadian party discontinued work late in October and stored their camp equipment at St. Zacharie, Quebec. The personnel of the party was as follows: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., J. A. Pounder, D. L. S., D. F. Chisholm, B. Foley.

#### UNITED STATES PARTY ON HALLS STREAM

The United States party began work northward along Halls Stream from a point near Beecher Falls, Vt., using methods for the survey in that locality similar to those used on the St. John and St. Francis Rivers. The positions of monuments and topographic control points were determined by triangulation, which was carried up the valley of the stream from a



base line and azimuth measured near Beecher Falls. A topographic map was made, with plane table and stadia, on a scale of 1: 5,000 and contour interval of 20 feet. It included Halls Stream and most of the valley on each side. It showed all houses, highways, railroads, fence lines, and the boundary reference monuments. A line of levels for vertical control of the topography was run along the Maine Central Railroad from a railroad bench mark at Beecher Falls.

The boundary through Halls Stream was referenced by resetting, in concrete bases, the old cast-iron monuments placed in 1845, and by 2-inch bronze disks set in outcropping ledges or in concrete bases 12 inches square extending 3 feet or more below the surface of the ground. Four of the cast-iron monuments originally placed along the lower part of the stream had been lost by erosion of the banks and could not be found. Small reference monuments were set near the former sites to take the place of these lost monuments.

The valley of the lower part of Halls Stream is well settled. Throughout a distance of about 10 miles from Beecher Falls, as far as the village of Paquetteville, Quebec, most of the valley has been cleared of timber, and the survey for this distance was carried forward with comparatively little cutting. Beyond



Camp of United States party on Halls Stream, 1914

this point, the valley becomes quite narrow and is densely wooded, and the stream, which is narrow and crooked, is lined on either side with spruce, hardwood, and alders. There is a fairly good highway along the valley from Beecher Falls to Paquetteville, and the Maine Central Railroad runs along the west side of the stream and leaves the valley near the village of Malvina, Quebec.

Encountering bad weather, the party on Halls Stream withdrew from the field on November 12, and stored the camp outfit at Beecher Falls, Vt.

The personnel of the United States party for the season of 1914 was as follows: Chief of party, J. E. McGrath; assistants, R. H. Blain, F. H. Brundage, J. R. Sinclair.

#### SEASON OF 1915—THE HIGHLANDS BOUNDARY, THE BOUNDARY ALONG HALLS STREAM, AND MAJOR TRIANGULATION CONTROL OF THE SURVEYS OF THE ST. FRANCIS AND ST. JOHN RIVERS

In 1915 activities on the survey of the boundary from the source of the St. Croix River to the St. Lawrence River were considerably increased. There were four parties in the field: A United States party along the upper half of Halls Stream; a United States party on the Highlands boundary west of Boundary Siding at the

Canadian Pacific Railway crossing; a Canadian party on the extreme eastern end of the Highlands; and a Canadian triangulation party doing the major control necessary to establish the surveys of the St. Francis and St. John Rivers on North American datum. The aggregate number of engineers, surveyors, and hands employed in the four parties was about 85 men.

The Highlands boundary, which is the name usually given the portion of the line which follows the crest of the divide from the Southwest Branch of the St. John River to the head of Halls Stream, is the roughest and most inaccessible part of the international boundary east of the Rocky Mountains. Throughout most of its length of 175 miles, this part of the boundary follows a range of high hills or

mountains, densely wooded with fir, hardwood, and underbrush. In many places it has been burned over and is deeply covered with fallen timber. The whole section is a vast wilderness, which is seldom entered except by logging parties operating

only in the winter time over snow roads. As these roads were practically impassable in the summer, it was necessary for the surveying parties to construct roads and trails for their own use over which their supplies and monumenting materials could be transported.

The work of surveying this part of the boundary was divided between the two sections of the commission as



Monument 402 at boundary crossing of Canadian Pacific Railway



United States survey camp at Boundary Siding, Quebec



follows: From the eastern end of the Highlands to monument 402, at the crossing of the Canadian Pacific Railway (74 miles) to the Canadian section, and from monument 402 to the head of Halls Stream (101 miles) to the United States section. In addition to the usual work of surveying, locating, mapping, and monumenting the line, each section of the commission was also to do the major control necessary to place its part of the work on North American datum by tying the survey to primary triangulation stations of the Geodetic Survey of Canada.

#### UNITED STATES PARTIES ON THE HIGHLANDS

A United States party began work on June 3 on the Highlands westward from Boundary Siding. The first camp was established on the Canadian Pacific Railway at the boundary line, with Lowelltown, Me., the nearest regular station on the Canadian Pacific Railway, about  $3\frac{1}{2}$  miles southeast of Boundary Siding, as the base of supplies. Around this point, on a radius of about 4 miles, the boundary line circles westward and southward, and was accessible by the railroad at Boundary Siding and by two abandoned logging roads leading westward into the hills. From this base, the survey of about 11 miles of the line west from Boundary Siding was completed before it was necessary to move the base of supplies to the other side of the mountain.

As soon as the officers of the party reached the field a general reconnaissance was made of the country, and it was decided that the most feasible means of transportation for moving the camp equipment, keeping the parties supplied, and transporting monumenting materials to the boundary line along the crest of the mountain range would be by pack trains. Accordingly, 20 horses were purchased and equipped with western pack outfits, most of which it was necessary to make at Lowelltown under the supervision of the officers of the party who had had experience in pack-train work in Alaska and in the Rocky Mountains, as no one could be found in

the East who could supply the kind of outfit required, and there was not sufficient time to have it shipped from the West. By the time the party had completed the work from the camp at the railroad at Boundary Siding and were ready to move westward, the pack train was fully equipped and began taking supplies and equipment to the next camp, which was located at an old logging camp known as



Pack train leaving Lowelltown, Me., for Highlands boundary, 1915

Smyth's camp, near the boundary about one-half mile west of monument 404.

In addition to the matter of transportation, there were several other problems which had to be solved when the work began. One of these was the method of control which should be used for determining the positions of the old cast-iron monuments which had been set along the line in 1845. It was decided that the best



Canadian Pacific Railway along which triangulation base was measured near boundary crossing, 1916

method of doing this, as well as controlling the entire survey on North American datum, would be by triangulation, which at the start would be developed from a measured base along the railroad and later in the season connected to the primary triangulation stations "Megantic" and "Linier" of the Geodetic Survey of Canada.

After the work was well started it was found advisable, in order to permit the men to live as near as possible to the localities of their work, to divide the organization into two camps. One of these was composed of the units doing triangulation and line location; and the other, the topographic mapping, vista cutting, monumenting, and leveling. This arrangement, however, was modified from time to time, depending upon the progress of the various parts of the work and the proximity of the camps to the several activities.



Camp of topographic party, near Moose Mountain, in Highlands, 1915

The topographic mapping of the strip of country along the boundary and of the comparatively large areas within the big loops of the line was done with plane table and stadia on a field scale of 1:20,000 and a contour interval of 20 feet. Each sheet was controlled by plotted geographic positions of the monuments and triangulation stations and the turning points of the transit and tape traverses



of the boundary between monuments. In those sections where the boundary forms loops some plane table triangulation was done, locations being made by three-point intersections. For filling in the topography between stadia traverses, each of which was tied to other traverses or started at the boundary line and was run around small areas about one-half mile square, aneroid barometers and paraffined string tapes were used, the topography at all times being sketched in the field directly on the plane table sheets.



Survey pack train on Spider River, Maine-Quebec Highlands, 1915

For the purpose of establishing a primary level bench mark on the base of each of the large boundary monuments, and for furnishing vertical control for the topographic mapping, a line of primary levels was run in closed circuits from a precise level bench mark which had been established by the Geodetic Survey of Canada on the Canadian Pacific Railway at Boundary Siding. At the end of the season this series of circuits of boundary levels was connected to a water gauge at the southern end of Lake Megantic, the elevation of which was determined from a Canadian precise level bench mark at the northern end of the lake at Megantic, Quebec, by a series of simultaneous readings of the water surface elevations at each end of the lake. The boundary was monumented as elsewhere on the Highlands.



Fire lookout tower used as triangulation station, Snow Mountain, Me., 1915

By August 1, the work had reached the vicinity of monument 411, which is about 12 miles along the boundary from the railroad and about 9 miles by trail from Lowelltown. Beyond this point the line was more accessible from the other side of the mountain range. The base of supplies was therefore transferred from Lowelltown, Me., to Megantic, Quebec, from which point the supplies and materials were hauled 20 miles by teams and wagons to a supply camp at the terminus of the road in the Louise Valley. From here they were distributed by pack trains to the survey camps along the boundary.

When Louise Mountain was reached and the work was begun on the other large loop in the boundary around the Arnold River Valley, provisions, boundary marks, cement, and horse

feed were transported from Megantic by boat on Lake Megantic to the wharf at Three Lakes, or to Woburn Wharf, near the south end of the lake, and from there taken by teams and wagons to the ends of roads leading toward the boundary, and thence by pack trains to the various camps and points on the boundary line.

On October 8, the topographic camp was moved to the site of an old "line house," where a fairly good road crosses the boundary, running east from the village of Woburn, Quebec, to a hunting and fishing camp on Arnold Pond. Since it was the most accessible point for beginning work on the boundary the following spring, it was selected as the general objective point for closing the operations of 1915. By October 20 the vicinity of this point was reached by the various units of the work as follows: The triangulation, monumenting, and vista cutting to monument 427; the leveling to monument 431; and the topographic mapping to monument 433.

There remained the tying in of the boundary triangulation to the Canadian primary stations "Linier" and "Megantic." As it was desirable that this should be done before the close of the season's work, in order to furnish data for computation work in the office during the winter and to facilitate the start of the triangulation the following season, the topographic party discontinued work on October 27, so that the engineers and surveyors employed on that work would be available for assisting the triangulation party with the work of observing the long lines of the major triangulation necessary to connect the survey to triangulation stations of the Geodetic Survey of Canada.

On October 28 the topographic outfit was moved to Megantic and stored; and on the 29th, observers and light tenders went to stations "Megantic," "Linier," "Snow," "Bald," "Kibby," and "Ste. Cecile." These stations are quite widely separated, the longest line being about 49 miles. They were all on mountain tops, and clear nights were necessary for making the observations. In the late fall, such nights seldom occur in that country, and the five cloudless ones necessary to complete the observations were scattered over a period of 19 days, during which time the men on the mountains experienced everything from fog and rain to heavy snows and zero weather. The low temperature caused the gas producers of the acetylene lights to freeze, and it was with great difficulty that the lamps were kept burning during the periods of observation.

Until the purpose of this night work was understood by the people living near some of the stations, the lights on the mountain tops excited much suspicion, which almost resulted in raids upon the parties. The Great War was on at that time, and it was suspected that the lights were part of a German spy system in operation. As soon as the facts became known, however, this uneasiness ceased and the work was finished without any unfortunate occurrences.

The night work was completed on November 18, and the observers and light tenders returned to Megantic.

In the meantime, the line location, vista cutting, and monumenting party had broken camp, the last load arriving at Megantic at 11.30 p. m. on November 4 in a blinding snowstorm. The outfit was dried and stored at Megantic and the horses shipped to Cookshire, Quebec, to be cared for during the winter.



The work of the United States parties on the Highlands was inspected during the season by the commissioners, Dr. W. F. King, for His Britannic Majesty, and Mr. E. C. Barnard, for the United States. This inspection trip was made during the second week in September, the commissioners visiting the camps of the triangulation and topographic parties and inspecting the boundary in the vicinity of Pisgah Mountain at the southern end of the Louise Valley. Also, on September 26 and 27, the work was visited by Mr. J. E. McGrath, who was in charge of the United States party operating that year on Halls Stream.



Boundary vista on Moose Mountain, Maine-Quebec Highlands, 1915

The personnel of the United States organization on the Highlands boundary in 1915 was as follows: Engineer in charge of the work, James H. Van Wagenen; chiefs of parties, Jesse Hill, H. C. O. Clarke; assistants, E. V. Perkinson, Lee Morrison, R. K. Lynt, W. F. Lehfelt, George Brown, J. A. Stewart, Alex McDiarmid, J. E. Bump.

#### CANADIAN PARTIES ON THE HIGHLANDS

The Canadian section of the commission continued work in 1915 on the eastern end of the Highlands, and did the major control necessary to establish the surveys of the St. Francis and St. John Rivers on North American datum. The work of these two parties was in charge of Mr. Thomas Fawcett, D. T. S.

About the middle of May a small advance party went into the woods from St. Zacharie, Quebec, and cut a road through the woods to Metgermette Lake from the nearest farm, a distance of about 3 miles. A week later the entire party was in camp at the lake, ready for the season's work.

The methods of doing the work were similar in every way to those used by this party the previous season.

The precise traverse which had been so satisfactory in 1914 was again adopted as the best means of locating the monuments and furnishing the control for the topographic mapping. It was found that this method of control was more economical than triangulation because this part of the Highlands boundary is heavily timbered and not of sufficient relief to admit of triangulation control that would locate all the monuments without considerable tower building and much line cutting.

In locating the line between monuments, it was found, as in 1914, that there were many inaccuracies in the old survey notes which, after being adjusted to fit the positions of the monuments as determined by the precise traverse, were used to determine the positions of the intermediate boundary turning points. Occasionally

the line as laid down from the old notes would depart from the crest of the ridge or, at times, fall entirely out of the old vista, which could still be traced by an experienced woodsman. In such cases, the old notes were discarded and the crest of the ridge and the line of the old cuttings were taken as conclusive evidence of the correct location of the boundary. By careful inspection, it was obvious in most of these cases of disagreement that the old notes were usually in error by an even number of degrees at some angle point or an even number of chains in distance. When such points of error could be identified and corrected, it was usually found that the notes fitted very closely to the line relocated in accordance with the old vista or the crest of the watershed.

The same scheme of monumenting was followed that had been used the year before on the Highlands.

As usual, a vista was cut along the boundary line. Levels were run in closed circuits along the precise traverse line and the boundary, and a topographic map was made of the strip of territory extending one-half mile on each side of the boundary line. The topography was taken by compass and stadia traverses supplemented by notebook sketches, which were transferred immediately to the field sheets. During the season three azimuths were observed to check directions on the precise traverse lines.

The first camp was on Metgermette Lake, the second near a small lake called Frost Pond, and the third at the outlet of Portage Lake. The two latter camps were supplied by teams and wagons operated over roads leading in from Armstrong, Quebec. Transportation of monumenting material along the boundary was also by teams and wagons over fairly passable roads cut along the boundary vista by the surveying party.



Camp of Canadian party on Portage Lake, 1915



About the middle of September, while the party was camped at Portage Lake, the work was inspected by the commissioners, Mr. E. C. Barnard and Dr. W. F. King. A short time later the party was also visited by Mr. J. E. McGrath and Mr. James H. Van Wagenen, engineers in charge, respectively, of United States parties on Halls Stream and on the Highlands south of Megantic, Quebec, for the purpose of inspecting the work and consulting with Mr. Fawcett.

The party on the eastern end of the Highlands discontinued work about the end of October and stored the camp equipment at a summer camp on Portage Lake. As soon as the party was disbanded, some of the personnel went to Van Buren, Me., and joined the triangulation party engaged on the major control of the surveys of the St. Francis and St. John Rivers.

The personnel of the Canadian party engaged on the survey of the Highlands during the season was as follows: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., J. A. Pounder, D. L. S., D. F. Chisholm, B. Foley.

#### CANADIAN TRIANGULATION PARTY ON THE ST. FRANCIS AND ST. JOHN RIVERS

A Canadian party began work in May, 1915, on a scheme of triangulation to furnish the major control of the surveys of the St. Francis and St. John Rivers and of the North Line. It was planned that this scheme should be connected to various stations of the minor triangulation schemes along those rivers and to frequent monuments along the North Line, and that it was to extend from the primary stations "Frontier" and "Parke" (the latter a Laplace station), of the Geodetic Survey of Canada, near the outlet of Lake Pohenagamook, to precise triangulation stations of the United States Coast and Geodetic Survey in the vicinity of the source of the St. Croix River. When completed, this work would tie the positions of boundary monuments and turning points, and the topographic surveys of the boundary, to the North American datum.

The triangulation stations were located principally on ridges and isolated hills, which are characteristic features of the topography of that part of the country. In most cases these high points were heavily timbered, and considerable clearing and some tower building were required to obtain the necessary lines of sight. At intervals of about 6 miles along the boundary, monuments or other control points of the survey made in 1909 and 1910 were connected to the major triangulation, usually by means of a single closed triangle. Occasionally such subsidiary work had to be carried through additional figures in order to reach the desired point.

The triangulation was strengthened by connecting it to an astronomical longitude station of the Geodetic Survey of Canada at Edmundston, New Brunswick, where an azimuth was observed, making this point a Laplace station, and by a  $3\frac{1}{2}$ -mile base which was measured in November along the St. John River a few miles above Van Buren, Me. The base line and the scheme of triangulation were connected at four different points to precise level bench marks of the Geodetic Survey of Canada. The triangulation party was assisted late in the season in measuring the base and running levels by members of the Canadian Highlands

party who joined the triangulation party at the close of the season's work on the Highlands.

In September the work of the triangulation party was inspected by the commissioners.

The entire party withdrew from the field about the middle of November.

The personnel of the Canadian party engaged on the control triangulation along the St. Francis and St. John Rivers during the season of 1915 was as follows: Engineer in charge of the work, Thos. Fawcett, D. T. S.; chief of party, J. L. Rannie, D. T. S.; assistant, V. R. Davies.

#### UNITED STATES PARTY ON HALLS STREAM

Early in June, 1915, the United States party which had begun the survey of the boundary along Halls Stream the previous year resumed operations on the upper part of the stream, establishing the first camp of the season at Malvina, Quebec.

The work of this party was similar in most respects to that done the previous season on the lower part of the stream, except that when the dense timber and brush were encountered in the upper part of the valley a considerable part of the topography was taken by using a plane table with paraffined string tapes and aneroid barometers, in order to avoid as much line cutting as possible. The topography of the strip of country immediately adjacent to the stream was surveyed very accurately, however, with plane table, alidade, and stadia. It was only on the more distant hillsides that the less accurate methods were used. The topographic map was made on a field scale of 1:5,000 with contour interval of 20 feet.

The level line which had been started the previous season at Beecher Falls, Vt., was continued up the valley and connected to a precise level bench mark of the Geodetic Survey of Canada on the Maine Central Railroad, at Malvina. From this point, a line of levels was run to the head of the stream and continued some distance along the western end of the Highlands boundary. When work was undertaken the following year, this line of levels, as well as the general system of levels of the survey along the Highlands, was closed on a Canadian precise bench mark on the Maine Central Railroad at St. Malo, Quebec.

During the first part of the season work was considerably retarded by dense smoke from forest fires and by the large amount of line cutting which had to be



Tree used as signal and instrument stand, triangulation on St. Francis River



done in order to extend the small scheme of triangulation along the narrow wooded valley of the upper part of the stream.

Camp supplies were brought to Malvina station by rail. The only other form of transportation was teams and wagons, which were hired locally when camp was moved.

On September 11 the commissioners, Dr. W. F. King and Mr. E. C. Barnard, visited the camp and inspected the boundary and the work near the head of Halls Stream. The commissioners were accompanied on this inspection trip by the chief of party, Mr. J. E. McGrath, and by Mr. James H. Van Wagenen, who was in charge of the United States parties working on the Highlands near Megantic, Quebec.

By November 1 the survey of Halls Stream had been completed, and, in addition, considerable topography and leveling had been done on the western end of the Highlands.

The party disbanded during the first week in November, and the outfit was taken to Beecher Falls, where it was stored for the winter.

The personnel of the party on Halls Stream was as follows: Chief of party, J. E. McGrath; assistants, R. H. Blain, F. H. Brundage, J. R. Sinclair, Jesse Young.



Mountain Lake, New Hampshire, looking east from monument 477

#### SEASON OF 1916—THE HIGHLANDS BOUNDARY AND THE COMPLETION OF THE MAJOR CONTROL OF THE ST. JOHN RIVER AND THE NORTH LINE

The season of 1916 marked the completion of the western portion of the Highlands boundary, which had been assigned to the United States section of the commission, and the major control of the boundary from Lake Pohenagamook to the source of the St. Croix River, which had been undertaken the previous season by the Canadian section. Also, on the eastern Highlands the Canadian party completed the work westward to the vicinity of the "line house" at the boundary crossing of the Kennebec Road.

#### UNITED STATES PARTIES ON THE HIGHLANDS

The United States section of the commission began field work on the Highlands about May 15. The organization consisted of four parties under the direction of the engineer to the United States section of the commission. Two of these parties, one a line-locating, topographic, vista-cutting, monumenting, and leveling party, and the other a reconnaissance and triangulation party, conducted operations

westward along the line from the vicinity of the village of Woburn, Quebec, the place where work was discontinued by these parties the previous season. Similarly, the other two units, a line-locating, topographic, vista-cutting, monumenting, and leveling party, and a triangulation and reconnaissance party, began at the head of Halls Stream and worked eastward. The four parties consisted, in all, of about 100 men. The size of each party was dependent upon the amount of work necessary

in 1916 to complete, during that season, the portion of the Highlands boundary assigned to United States surveyors.

The major triangulation, which had been tied to the Canadian primary stations "Linier" and "Megantic" late in the fall of 1915, was continued westward from the line "Snow-Monument 425" through a series of quadrilaterals with lines of an average length of about 8 miles. This was joined at the end of the season by a similar scheme developed from a measured base and observed eastward from the



Triangulation party moving camp in Arnold River Valley, Maine-Quebec Highlands, 1916

head of Halls Stream. Subsidiary to this main scheme of control, there were also observed about 150 small figures to determine the positions of all the boundary monuments along the line from monument 426 to monument 505. During the last few weeks of the season, after a junction had been made by the two triangulation parties, the extreme western end of the triangulation, near the head of Halls Stream, was tied to the Canadian primary station "Hereford" and an azimuth obtained from the Canadian primary line "Hereford-Megantic." With "Hereford" as a common point, the major control was then extended down Halls Stream to Beecher Falls, Vt. This was done by three large figures, which at frequent intervals were tied to the small scheme which had been extended along Halls Stream in 1914 and 1915. This, together with the work of 1915, completed all the major triangulation necessary to place the survey of the boundary from the Canadian Pacific Railway crossing of the Highlands to the mouth of Halls Stream on the North American datum.

In addition to carrying forward the major scheme of control, it was necessary to obtain many subsidiary lines of sight from each station to locate boundary monuments. On the more mountainous part of the Highlands this was done by clearing the summits on which the stations were located. On the western portion, however, where the relief is not so great and the stations had to be located on low, flat-topped hills, 12 observing towers were built, of sufficient height (25 to 70 feet) to enable the triangulators to see over the surrounding timber. In all cases these towers were built of native timber cut near the station by the reconnaissance party.





United States party which worked eastward from head of Halls Stream, Highlands boundary, 1916

The boundary traverse was run with transit and tape. Along the steeper parts of the line the tape was held parallel to the slope and vertical angles were read at the end of each tape length and the distances were later reduced to the horizontal. In general, the vertical angle method of measuring along slopes was found to be more accurate than measuring directly the horizontal distance by "breaking tape."

Following the line location, a vista was cut through the timber, this line of cutting being of sufficient width to give a clear 10-foot sky line on each side of the boundary.

In some places considerable difficulty was experienced in locating the boundary from the old notes. A case of this kind occurred in locating the line from monument 430 to monument 431, which crosses the low divide in the vicinity of the site of the old line house east of Woburn, near Arnold Pond.

The dividing ridge at this point is not sharp and well defined; and in locating the line, dependence was placed at first entirely upon the angles and distances given in the old notes. It was not until the line had been run out and marked and the vista cut that the attention of the chief of party was called by an expert woodsman to the fact that by careful inspection of the timber it could be seen that the new line and vista did not follow the old line of cuttings. By plotting the old notes of the line between these monuments and comparing them with the course of the old cuttings, it appeared that there was an error of  $10^{\circ}$  in one of the angles. When modified to this extent and the line rerun, it fitted very closely to the traces of the old vista, which was further identified by a careful inspection of the age of the timber and by old stumps, evidences of which could be detected when pointed out by an experienced woodsman.



In this particular case the discrepancy of location was inspected and the relocation approved by Mr. E. C. Barnard, United States commissioner, and Mr. J. D. Craig, representing the Canadian Government, and it was agreed that in all other places where similar discrepancies had occurred the line should be relocated and the vista recut.

The boundary was monumented as elsewhere on the Highlands.

Some interesting facts were developed in running out and monumenting the line. For instance, monument 440 was not known to exist; there was no record of it in the old notes; it was found by accident by the



Triangulation station on Gosford Mountain, Maine-Quebec Highlands



United States Commissioner E. C. Barnard (right) and J. D. Craig, D. L. S., at monument 492

chief of one of the triangulation parties while on his way along the boundary ridge to look for monument 441. Also two of the monuments, Nos. 483 and 484 in the old United States notes, were found to have been set only 18 inches apart. They marked an astronomic station of the survey of 1845. As this "double monument" was regarded as a landmark in that locality, the two monuments were reset in a single concrete base and numbered as one monument, No. 484. Monuments 481 and 482 were originally wooden posts. The rotted remains of these were found, with rocks piled around them, and they were replaced by two new cast-iron monuments of design similar to the other monuments. Monument 505 is a large iron monument cast in three sections. It marks the boundary near the head of Halls Stream and is one of several similar large monuments originally used to mark important



boundary points from the source of the St. Croix River to the St. Lawrence River.

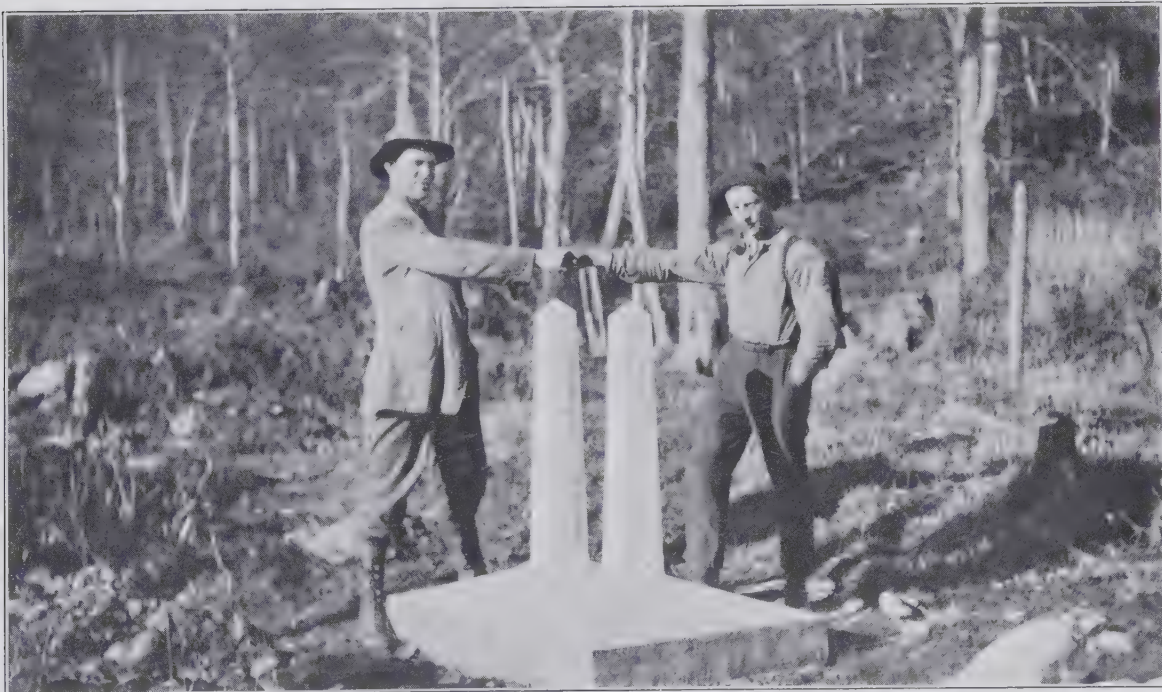
The topography of the country inside the loop around the Arnold River Valley (sheet No. 17 of the boundary maps) and, in every case, of the country within a distance of at least one-half mile on each side of the boundary was mapped with plane table, alidade, and stadia, supplemented by string tapes and aneroid barometers. In general, the method of taking the topography was the same as that adopted by the United States parties on the survey of the Highlands in 1915. The field scale of the map was 1:20,000 and the contour interval 20 feet.

The vertical control for the topography was furnished by two lines of levels, one run westward along the boundary from a bench mark established at the close of the season's work in 1915 at monument 431, and the other eastward from a Canadian precise level bench mark (555-B) on the Maine Central Railroad, near St. Malo, Quebec.

During the first part of the season, the parties on the eastern end of the work were supplied, as in 1915, from Megantic, Quebec. Mess supplies, horse feed, and monumenting materials were transported by steamer on Lake Megantic to Woburn



The "double monument" before it was reset, Highlands boundary, near source of Connecticut River



The "double monument" after it was set





Third Lake, source of Connecticut River, looking south from the "double monument"

Wharf and thence by teams to logging camps in the Arnold River Valley. From these caches the supplies and materials were taken to the various camps and to the boundary line by pack trains operating over trails cut through the timber and brush by the surveying parties.

On the western end of the work, during the first few weeks, materials and supplies for the parties were shipped by rail to Malvina, Quebec, and from there taken to the camps by teams and wagons, and the materials were then distributed along the boundary by pack trains. After the work had progressed eastward about 7 miles, the camps became more accessible by way of a fairly good road from Sawyerville, Quebec, which place was thereafter used as the base of supplies until monument 489 was reached.



Pack-train supply base, Arnold River Valley, 1916



On August 22, a central base of supplies for all the parties was established on the Canadian Pacific Railway at Scotstown, Quebec. By this time the two parties which had started westward from Woburn, Quebec, had completed the loop in the boundary around the Arnold River Valley and were within reach of a good highway running through the settled valley south of Megantic Mountain. The parties on the west were also within reach of the



Triangulation camp on Halls Stream, 1916



Tower at triangulation station "Bien" near monument 489 on the Highlands

same road a few miles west of the village of Chartierville, Quebec. This made it possible to haul supplies by teams and wagons from Scotstown to La Patrie, Quebec, and thence in either direction directly to the several boundary camps. Pack trains operating in the mountains distributed the monumenting materials from the camps to points along the boundary.

Throughout the season the work required the continuous use of 6 teams and wagons and about 35 pack animals. Twenty-three of the animals were owned by the Government, and the others were hired for the season at settlements on the Canadian side of the boundary. In order that the pack-train transportation might be handled as efficiently as possible, two western packers were hired who had had considerable experience on the survey of the boundary along the one hundred and forty-first meridian between Alaska and Canada, with the result that the field transportation was considerably improved over that of 1915.

The most difficult part of the transportation was the delivery of monumenting materials to the boundary line.

A considerable portion of the line follows a high, sharp ridge, the crest of which in many places could not be reached by pack animals, and in such cases the materials, consisting of sand, cement, vitrified pipe, and water, had to be packed for considerable distances on men's backs.

During the season the parties camped at 25 different places, the outfits, consisting of light equipment, being moved frequently with the object of keeping the men close to their jobs, so as to avoid, as much as possible, long trips each day to and from work.

As soon as the two triangulation parties effected a junction near monument 478, they moved to Halls Stream and, during the first two weeks of October, completed the major control triangulation from the head of Halls Stream to Beecher Falls, Vt., and the entire scheme was tied, in position and azimuth, to the Canadian primary line "Hereford-Megantic."

By October 10, the other parties, working east and west, had met at monument 475, which is located at the point where the international boundary is intersected by the Maine-New Hampshire boundary, and a line-locating party, which had been sent to the head of Halls Stream, had completed a transit and tape traverse of the boundary along the upper end of the stream as far south as reference monument 508. This traverse had been found necessary in order to define accurately the course of the boundary along the narrow upper portion of the stream, which is there only a small intermittent brook, almost hidden in dense growths of alder brush.

The parties, which by this time had been greatly reduced in numbers, were disbanded, and the outfits and instruments were moved to Scotstown, Quebec, where they were inventoried and stored for the winter. A wagon and 11 horses were sold at public auction, and the remaining 12 horses were taken to Beecher Falls to be wintered.

An inspection of the work of the four parties was made during the last week of July by Mr. E. C. Barnard, United States boundary commissioner, and Mr. J. D. Craig, D. L. S., representing the Canadian Government.

The personnel of the United States organization on the Highlands boundary in 1916 was as follows: Engineer in charge of the work, James H. Van Wagenen; chiefs of parties, H. C. O. Clarke, W. C. Guerin, Jesse Hill, F. H. Brundage; assistants, Nelson W. Smith, E. V. Perkinson, Lee Morrison, M. E. Lutz, E. C. Guerin, W. F. Lehfelt, C. E. Carl, George Brown, Walter McCrea, J. A. Buchanan, R. C. Snyder, S. O. White, J. A. Stewart, J. E. Bump, Jesse Young, Joseph Mercier, Hollis Young.

#### CANADIAN PARTIES ON THE HIGHLANDS

The two Canadian parties which were engaged on the survey of the eastern end of the Highlands boundary and on the major control of the surveys of the St. John and St. Francis Rivers in 1915 continued these same activities in 1916.

Operations of the Highlands party were begun near Portage Lake about May 20. By methods similar in every respect to those employed by that party in 1915, the survey was carried westward into the more mountainous portion of the line, which begins a few miles east of the crossing of the Kennebec Road.

In many ways this change in the character of the country increased the difficulties of the work, but, on the other hand, it reduced considerably the amount of



cutting necessary on the precise traverse line, as the lines of sight passed above much of the timber between the hills on which the ends of the courses were located.

The first camp of the season was on Portage Lake and was easily accessible by a good road from Armstrong, Quebec, to the outlet of the lake. The work about the lake was much facilitated by the use of canoes and boats, which enabled the men to work longer from this camp than would have been possible had it been necessary to walk the entire distance each day.

After moving camp from Portage Lake, the transportation problem was more difficult. The supplies and materials were hauled from Armstrong, Quebec, to the foot of the lake, and were then transported by canoes and boats to the head of the lake, from which point they were hauled by horses and jumpers over a road which the surveyors cut along the boundary to the next camp. As the work progressed, this haul by way of Portage Lake became longer and more difficult, but attempts to find a shorter route were unsuccessful, as a more direct road would necessarily have led through swamps which were impassable throughout practically the entire season on account of the heavy and frequent rains. The supply route by way of Portage Lake had to be used until the end of August, when a road was opened along the boundary eastward from the Kennebec Road to camp. The total amount of road cut during the season was about 15 miles.

The season was notable for unfavorable weather. Records kept in camp show that there were 45 days of rain during the 150 days the party was in the field.

Notwithstanding the difficult transportation and the unfavorable weather, the party made good progress, and by the end of the season the work had progressed to the vicinity of the "line house" at the Kennebec Road.

The party discontinued work about the middle of October and came out by the Kennebec Road, storing the equipment at Armstrong, Quebec.

The personnel of the field party operating in the Highlands in 1916 was as follows: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., C. R. Westland, D. L. S., L. C. Nesham, B. Foley.

#### CANADIAN TRIANGULATION PARTY ON THE ST. JOHN RIVER AND NORTH LINE

While the above described activities were under way on the Highlands boundary, the Canadian triangulation party, which, by the end of the previous season, had completed the major control of the work along the St. Francis and most of the St. John River, began work about the middle of May from a camp near Van Buren, Me., and continued southward along the North Line to the source of the St. Croix.

When the vicinity of the source of the St. Croix River was reached, the scheme of control was tied to precise triangulation stations "Spring Hill," "Pole Hill," and "Kennedy," of the United States Coast and Geodetic Survey.

In addition to the triangulation, the party determined azimuths of the boundary and geographic positions of the monuments at intervals of about 5 miles along the North Line, and also made connections with two precise level bench marks.

The personnel of the Canadian triangulation party during the season of 1916 was as follows: Engineer in charge of the work, Thos. Fawcett, D. T. S.; chief of party, J. L. Rannie, D. T. S.; assistant, James Bowie.

SEASON OF 1917—THE BOUNDARY ALONG THE HIGHLANDS, THE VERMONT-QUEBEC BOUNDARY, THE NEW YORK-QUEBEC BOUNDARY, AND THE BOUNDARY ALONG THE ST. JOHN RIVER

In 1917, the work of the two sections of the commission on the line between the source of the St. Croix River and the St. Lawrence River was carried on by five parties, located as follows: On the boundary along the Highlands, a Canadian party continued westward on the part of that line which had been assigned to their section of the commission; and a small United States party put the finishing touches on the portion of the Highlands which had been allotted to them. On the line from Beecher Falls to the St. Lawrence River, a Canadian party did the triangulation for major control from Halls Stream to the Richelieu River, and tied the survey of the New York-Quebec line to primary triangulation stations of the Geodetic Survey of Canada. At the same time, a United States party mapped the topography and ran the levels of the New York-Quebec line. On the St. John River, a United States party set additional reference monuments and located them by triangulation.

CANADIAN PARTY ON THE HIGHLANDS

The Canadian party resumed operations on the Highlands about the middle of May, at a point near the crossing of the Kennebec Road, establishing their first camp at the "line house."

The methods of surveying were the same as used by the Canadians in 1914, 1915, and 1916, namely, horizontal control by invar tape traverse; vertical control by spirit levels run along the traverse line; and topography of the area one-half mile wide on each side of the line, taken with prismatic compass, hand level, and stadia. The old cast-iron monuments were reset in concrete bases, and a vista was opened along the boundary.

When camp was moved into the mountains west of the Kennebec Road, the only supply route for some distance was a road cut through the woods by the surveyors, which was extended as the work progressed. Everything taken over this



"Line house" at boundary crossing of Kennebec Road, 1917



road had to be hauled on jumpers. When Lake Emily was reached, a shorter and more passable supply route was furnished by an old road leading north from the boundary line about 10 miles to the farm of a Canadian settler, which was on a fairly good road about 3 miles south of the main highway between the villages of St. Gedeon and St. Theophile. Transportation of supplies and monumenting materials through the woods required the continuous use of two teams.

The work was retarded somewhat by the frequent rains which occurred in the mountains, records kept in camp showing that, on an average, it rained one day out of three throughout the season.

Another problem with which the party had to contend was that of securing labor, for, on account of the war, men were scarce and wages were high, and it was difficult to find good men who were willing to work on the boundary under the necessarily uncomfortable conditions that prevailed in the survey camps.

On September 20 and 21, the work of the Canadian party on the Highlands was inspected by Mr. James H. Van Wagenen, engineer to the United States section of the commission.

The party disbanded at the end of October and part of the outfit was cached at Lake Emily, the rest being taken out by way of Boutin's farm to Armstrong, where it was stored for the winter.

The organization of this party on the Highlands in 1917 was as follows: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., C. R. Westland, D. L. S., J. N. Ingersoll, W. Smith, B. Foley.

#### UNITED STATES PARTY ON THE HIGHLANDS

When field operations of the United States parties engaged in surveying the Highlands were discontinued in October, 1916, there still remained uncompleted the setting of seven monuments (Nos. 403 to 409, inclusive), and the relocation and vista cutting on certain portions of the boundary where careful inspection showed that the first location made was erroneous and fell outside of the original vista. A small United States party undertook this unfinished work in 1917, going in from Lowelltown, Me., on May 15 with six pack animals and a light camp outfit.

The seven monuments referred to, west of the Canadian Pacific Railway, which had not been set in 1915, were set in concrete bases in the usual manner. A new cast-iron monument was dragged in to replace monument 403, which was the only monument not found intact in 1915 and 1916. The concrete bases of monuments 410 to 423, which had been left uncompleted in 1915, were finished and stamped.



Monument 418, set by United States monumenting party, 1917

The line was relocated for short distances in several places to make it conform more closely to the ridge or to the old vista, and in such places the bronze disk monuments were moved, a new vista opened, and the new angles and distances measured.

After completing the work as far as monument 423, the camp was moved to Woburn, Quebec, and thence to Arnold Bog, where a short time was spent tying in the boundary to the triangulation stations and checking deflection angles.

After a final inspection had been made of the line by Mr. H. C. O. Clarke to make certain that the boundary as relocated was everywhere within the old vista, the party withdrew from the woods on July 17. The horses were sold at auction the next day, and the men joined the United States parties which had begun work early in 1917 on Grand and Spednik Lakes and the St. Croix River.

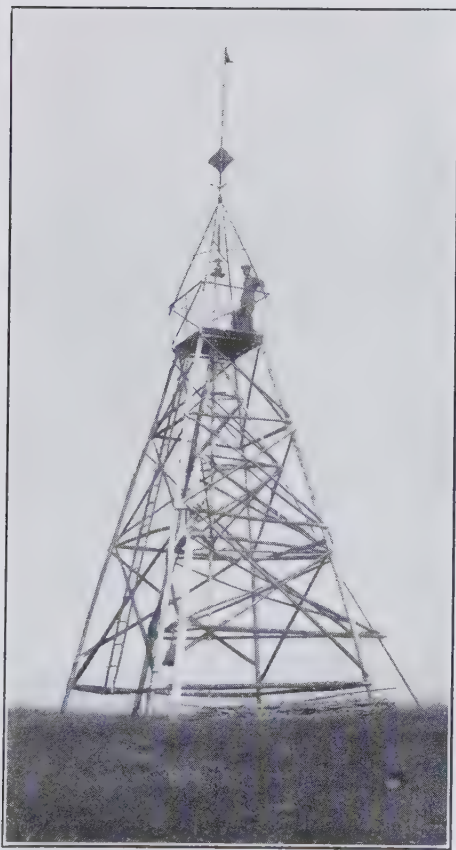
The personnel of the United States party on the Highlands from May to July was as follows: Engineer in charge, James H. Van Wagenen; chief of party, Guy A. Perry; assistant, J. A. Stewart.

#### CANADIAN TRIANGULATION PARTY, HALLS STREAM TO THE ST. LAWRENCE

A Canadian party commenced operations near Beecher Falls, Vt., in the latter part of May, 1917. They began the triangulation from the line "Hereford-Beecher Tablet," which had been established by the party of the United States section of the commission working on Halls Stream in 1916, and the scheme was expanded westward along the boundary, locating monuments at intervals of about 3 or 4 miles. It was connected with the stations "Owl's Head" and "St. Armand," of the Canadian Geodetic Survey, with certain township and lot corners, and with four precise level bench marks.

Transportation was comparatively simple, as there were good roads throughout the area covered and motor transportation was available for moving camp and going to and from the triangulation stations. A Ford truck belonging to the party was kept in constant use supplying camp and moving the observers. Occasionally, when required, teams and wagons and another automobile were hired locally. This was the first Canadian boundary party that had used motor transport throughout an entire season, and its use resulted in such a considerable saving of time that the party was able to complete in 1917 work which would have required part of a second season if the truck had not been used.

By the middle of October the work had progressed as far as Lake Champlain, beyond



Observing tower, triangulation, Vermont-Quebec line



which point the triangulation was extended only far enough to make a connection with the eastern end of the Quebec-New York line. A few weeks were then spent in the neighborhood of the Canadian Geodetic Survey stations "Covey Hill" and "Huntingdon," where several monuments were tied to each of these stations by a combination of triangulation and traverse. The work was completed and the party withdrew from the field on November 10.

The personnel of this party was as follows: Chief of party, J. D. Craig, D. L. S.; assistants, F. Lambert, D. L. S., G. T. Prinsep, D. L. S., J. Sheppard, Jas. Bowie, T. P. Reilly.

#### UNITED STATES PARTIES, NEW YORK-QUEBEC LINE

When the New York-Quebec portion of the international boundary was surveyed in 1902, jointly by the Dominion Government and the State of New York, a transit and tape traverse was run to locate the line, and the cast-iron monuments were replaced by granite posts set in concrete bases, but no topographic map was made. The work, therefore, of mapping the line and the topography of the country adjacent thereto, from the Richelieu River to the St. Lawrence River, a distance of about 65 miles, was assigned to a small United States party in 1917.

In 1916 a joint inspection had been made of this part of the boundary by the engineers to the two sections of the commission to ascertain the number of monuments which had deteriorated since 1902 and the amount of vista cutting which would be necessary to reopen the line. The result of this inspection was that in 1917 a small party in charge of an engineer from the New York State engineer and surveyor's office worked in conjunction with the topographic party and reset a number of monuments which had been heaved by frost, replaced one which had been broken, set an additional monument to mark an important road crossing, and opened several miles of vista where it was found necessary.

The parties began operations at Lake Champlain on May 16. The topographic party lived in tents and boarded at hotels or farmhouses in the vicinity of their work, the necessary transportation for moving camp and going to and from work being hired locally as needed.

The topography was mapped on a field scale of 1:20,000, contour interval 20 feet, using plane table and stadia. The horizontal control was furnished by the transit and tape traverse run in 1902, and was later adjusted to take care of such corrections as were found necessary after the line had been tied to primary stations of the Geodetic Survey of Canada, by the Canadian triangulation party in 1917.

In order to furnish vertical control for the topography and to establish a series of permanent bench marks at the boundary monuments, a line of primary levels was run in closed circuits along the boundary from a United States Coast and Geodetic Survey precise level bench mark at Rouses Point, N. Y., to the Chateaugay River, where the line was tied to a bench mark of the United States Geological Survey. A single line of levels was then continued westward and tied to United States Geological Survey bench marks at Trout River, N. Y., and at Fort Covington, N. Y., and to a bench mark of the Board of Engineers on Deep Waterways at Hogansburg, N. Y. The party established 41 permanent bench marks, marked with bronze disks set in the concrete bases of the monuments.



Monument repair work, New York-Quebec line, 1917. Resetting monument 736 which had been heaved by frost



The work of the parties was inspected by the United States boundary commissioner late in June, while the topographic party was camped at Mooers Forks.

The New York-Quebec line was completed on September 16.

The personnel engaged on the work was as follows: Engineer in charge of work, James H. Van Wagenen; chief of topographic party, Lee Morrison; chief of monumenting and vista-cutting party, H. F. Eagan; assistants, C. E. Carl, J. A. Buchanan.

#### UNITED STATES PARTY ON THE ST. JOHN RIVER

Subsequent to the resurvey of the boundary along the St. John River, which had been done during the field seasons of 1909 and 1910, the Bangor & Aroostook Railroad had extended its line along the south bank of the river from Grand Isle, Me., to Fort Kent, Me., and, in addition, a railroad bridge had been constructed across the river at Keegan, Me., and a highway bridge between Van Buren, Me., and St. Leonard, New Brunswick. The commissioners considered these features of sufficient importance to have them added to the boundary maps; and they also decided that the 33 islands of the river, which had originally been marked in 1844 with 60 monuments, most of which had been moved or destroyed, should each be remonumented with at least one cast-iron monument.

A United States party began this additional work on May 14 at St. Francis, Me., an inspection being first made to ascertain the number of iron monuments which still remained in place. Only 10 were found and, accordingly, the commissioners had cast, at Ottawa, 24 new monuments similar in design to the old ones, and had them shipped to the party and distributed along the river. Later in the season, 11 more of the old original monuments were found at near-by villages and farms, where they had been taken and used as hitching posts, and these were all restored to the islands and reset.



Islands in St. John River, near Connors, New Brunswick

The type of monument placed on the islands in 1844 was the same as that used to mark the boundary from the source of the St. Croix River to the St. Lawrence River, with the exception



Log jam in St. John River, near Keegan, Me.

of the inscription on one side. Instead of the words "Boundary Aug. 9, 1842," the inscription designates the nationality of the island by the words "Aug. 9, 1842, U. S. Island," or "Aug. 9, 1842, H. B. M. Island." The 21 old monuments and the 24 new ones were set in 3-foot square concrete bases. The base of each monument was stamped on one side with the number of the monument and the nationality of the island; and on the opposite side with the in-

scription "Renewed 1917." The two remaining sides of the base were left blank.

In addition to remonumenting the 33 islands which had been marked during the survey of 1843-44, five small islands were marked by 8-inch bronze post reference monuments set in rock or in concrete bases. Also 42 boundary reference monuments, consisting of 2-inch bronze disks in concrete bases 12 inches square, were set along the banks of the river at or near unmarked points of the triangulation of 1909 and 1910. The geographic positions of these boundary reference monuments and the monuments set on the islands were determined by triangulation, which was tied to the triangulation control of 1909 and 1910.



Boom piers in St. John River, near Lille, Me.

The topographic work of the season included the mapping of the bridges, the railroad, any features which had been changed or added during the construction of the railroad, and the revision



of the shore line at the heads of some of the islands where an appreciable amount of erosion had occurred since 1909 and 1910.

The work was inspected by Mr. E. C. Barnard, United States boundary commissioner, and by Mr. James H. Van Wagenen, engineer to the United States section of the commission, on August 31 and September 1.

The party completed work on the St. John River about November 1, and on November 3 the part of the outfit which was no longer needed was sold at public auction at Fort Kent, Me. The rest of the outfit was shipped to Vanceboro, Me., for future use on the survey of the St. Croix River.

The personnel of the party was as follows: Engineer in charge of work, James H. Van Wagenen; chief of party, Frank H. Brundage; assistant, H. B. Sullivan.

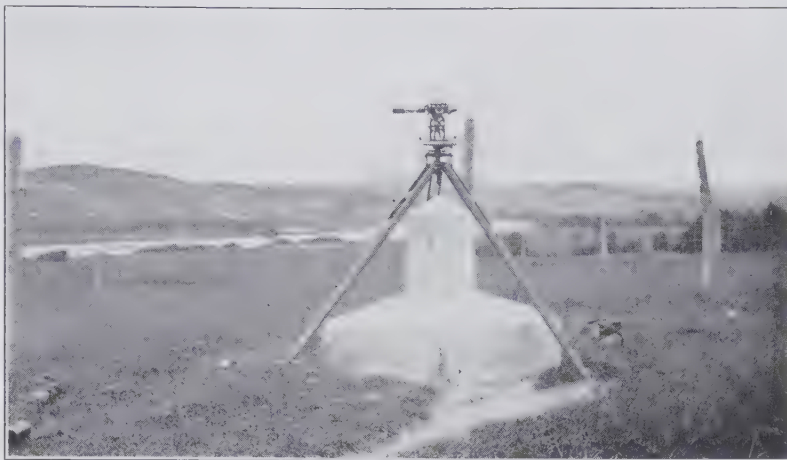
#### SEASON OF 1918—THE CANADIAN PARTIES ON THE HIGHLANDS

The only parties operating on the portion of the boundary from the source of the St. Croix River to the St. Lawrence River in 1918 were two Canadian parties

engaged on the Highlands boundary between the Southwest Branch of the St. John River and the crossing of the Canadian Pacific Railway.

The Canadian parties worked on the Highlands from each end of the uncompleted section of the line. The eastern party went in to Lake Emily on June 1, and began operations at the point where work had been discontinued the previous season.

As usual, transportation was difficult and long hauls had to be made over poor roads, most of which were constructed by the parties. Two teams were employed,



Reference monument S-54, St. John River



Camp near Daigle's Island, St. John River, 1917

one bringing supplies from the outside, the other distributing the materials and supplies along the boundary line; and when camp was moved, extra teams were hired and brought in for a few days, and the equipment hauled to the next camp site on jumpers. After 8 miles of road had been constructed westward by the party, a connection was made with a road from the village of Ste. Rufine, Quebec, and the base of supplies was then moved from Armstrong to the village of St. Ludger.

The party was considerably hampered by inefficient labor, and toward the latter part of the season the situation became very acute. The Canadian Government would not permit the hiring of men who were subject to call for military service or who had failed to register; wages on farms and in factories were high, and living conditions much more pleasant than in the survey camps in the woods. Scarcely any laborers other than old men or boys could be hired, and many of these were practically useless. On account of this scarcity of labor, it was found necessary by the middle of the summer to abandon the topographic work of the party for that season.

The party left the woods at the end of October, after cacheing most of the camp equipment at a camp in the woods near Du Loup Pond. The more valuable part of the equipment, however, was hauled out on jumpers and stored at Ste. Rufine.

The organization of this party was as follows: Chief of party, Thos. Fawcett, D. T. S.; assistants, G. L. Rainboth, D. L. S., C. R. Westland, D. L. S., J. N. Ingersoll, B. Foley.

The other Canadian party began work on June 1, eastward from monument 402, at the Canadian Pacific Railway crossing, the point from which the United States parties started westward in 1915.

In general, the method of survey adopted by this party was similar to that which had been used for several years by the Canadian parties on the Highlands, namely, the location of monuments by means of precise traverse, the running of a line of levels along the traverse line and the boundary, and mapping the strip of country along the line by plane table supplemented by traverses with prismatic compass, hand level, and stadia. The topography immediately adjacent to the boundary line was done by plane table on a field scale of 1:10,000, the roads, ponds, and small streams were also traversed by plane table, and the map was filled in by transferring the other field notes directly to the plane table sheet. The boundary line was traversed between monuments in the usual way, and a 20-foot vista was cut, but no monumenting was done by this party in 1918.

The first camp of the season was at Boundary Siding, Quebec, and was supplied by rail from Megantic, Quebec. After camp was moved eastward from the railroad, supplies were hauled from Megantic by teams to the end of a road running toward the boundary from the village of Spalding, from which point they were taken to camp on jumpers over logging roads or roads cut through the timber by the party.

The survey had reached a point near Leech Lake early in October, when operations were interrupted by the epidemic of influenza which was prevalent throughout the country. At this time half of the personnel of the party were stricken, and until the close of the season, the time of those who escaped the "flu" was fully occupied in taking care of those who were ill.



The condition of the sick men was such that it was impossible to take them out over the bad roads, and a doctor from Megantic, Quebec, who visited the camp on October 23, at once sent for a trained nurse. On account of the large number of cases throughout the country, great difficulty was experienced in getting a doctor to take charge of the patients in camp, and it was not until October 28 that the continuous services of one could be secured. He remained in camp until November 9, by which time most of the men had recovered, and the one who had been most dangerously ill had recovered sufficiently to be able to be carried out of the woods on a stretcher and then taken to a hospital in Montreal. Altogether, there were 14 cases of the disease in the party, only 3 of the personnel entirely escaping it.

As soon as all were sufficiently well to move out, the party disbanded for the season and the outfit was stored at Megantic.

The personnel of the party was as follows: Chief of party, J. D. Craig, D. L. S.; assistants, T. C. Dennis, D. L. S., G. T. Prinsep, D. L. S., T. P. Reilly.

## SEASON OF 1919—THE CANADIAN PARTIES ON THE HIGHLANDS

During the season of 1919, the eastern portion of the Highlands boundary which had been assigned to the Canadian section of the commission was completed, while the activities of the United States parties that year were centered on work on the boundary through Passamaquoddy Bay.

The Canadian party, which had discontinued operations near Du Loup Pond in 1918, resumed operations about June 1. On May 30, a small advance party went into the woods to the camp site near the pond, where they overhauled the equipment and repaired the roads. The other members of the party arrived on June 4, and the next day the party was organized in two divisions; one went back along the line to continue mapping the topography from the point at which it had been interrupted the year before, and the other remained at the camp at Du Loup Pond and continued westward with the boundary location and vista cutting. The parties used the same survey methods that had proved effectual during previous seasons.

From Du Loup Pond, a road was cut about 4 miles, to monument 392, at which point a junction with the western party was to be made. Camp was moved to this point, and, by the end of July, the precise traverse, boundary location, and monumenting were completed to monument 392.

A monumenting party then set the cast-iron monuments and bronze disks from monument 392 to monument 402 at the railway, the part of the line along which no monumenting had been done by the Canadian party in 1918. This work was completed and the party withdrew from the field on September 15. In the meantime, the topographic and leveling party finished work to monument 390 and withdrew from the field on September 4.

The eastern parties were supplied over two roads, one from Ste. Rufine to Du Loup Pond; the other from Spalding to a "line house" near monument 394. Transportation was considerably expedited by the dry weather.

The personnel of this party was as follows: Chief of party, Thos. Fawcett, D. T. S.; assistants, C. R. Westland, D. L. S., J. A. Pounder, D. L. S., J. N. Ingersoll, B. Foley.

The western party also began operations about June 1. They established two camps, a small one near Leech Lake which was occupied by the topographers, and a main camp at a "line house" near monument 394.

The precise traverse was continued eastward and a junction made with the precise traverse of the eastern party near monument 392. In order to strengthen the horizontal control, a point on the precise traverse, near the junction of the work of the two parties, was tied to the triangulation done by the United States parties in 1915, lines being cleared at this point to stations "Kibby," "Ste. Cecile," and "Ken," and the observations were completed by September 8.

In the meantime, all the other work of the party except the monumenting had been completed and the boundary location, vista cutting, and topographic mapping had been joined to similar work of the other party. The monumenting as far west as the Canadian Pacific Railway crossing was completed by the monumenting crew of the eastern party, which continued this work westward from monument 392.

The camps of the party were supplied from Megantic, Quebec, by means of a Ford motor truck owned by the Canadian Government and by teams operating over the road leading to the "line house" near monument 394.

The work was inspected by His Britannic Majesty's Commissioner, J. J. McArthur, D. L. S., during the month of August, and the party was also visited during the season by Mr. James H. Van Wagenen, engineer to the United States section of the commission.

The personnel of this party was as follows: Chief of party, J. D. Craig, D. L. S.; assistants, T. C. Dennis, D. L. S., G. T. Prinsep, D. L. S., T. P. Reilly, L. La Ferme, R. Tuite.

#### COMPLETION OF FIELD OPERATIONS, 1920 TO 1923

After the two sections of the commission had finished the surveys of the different portions of the boundary from the source of the St. Croix River to the St. Lawrence River, the last stretch of which was closed by the Canadian parties on the Highlands in 1919, the final computations showed that a small additional amount of field work should be done before the results would be complete. This included work made necessary by some modifications which the commissioners had decided to make in the method of laying down the boundary through the narrower streams and the work of correcting a few inaccuracies which were discovered on certain parts of the line.

It had been the original intention of the commissioners to locate the portions of the boundary which follow the several streams by laying down the line on the topographic maps and determining the geographic positions of the turning points of the boundary by scaling the distances and directions of the turning points from the boundary reference monuments. This method worked out very satisfactorily along the wider streams—the St. Francis and the St. John Rivers—but on Halls Stream and the Southwest Branch of the St. John River it was found that in many places the streams were so narrow that unless the maps were on a very large scale and absolutely free from errors, an accurate location of the line in the stream could



not be made in this way. It was therefore necessary that the positions of the turning points of the line laid down by the commissioners should be verified by actually running out the line in the field to make sure that it properly divided the waters of the stream.

During the course of the office computations, which involved the determination of approximately 7,000 geographic positions of points on the boundary line, it was found that several of the traverses which were run along the Highlands boundary over particularly rough ground were below the standard of accuracy which the commissioners had fixed for that work. It was decided that, where such inaccuracies occurred, the line between those particular monuments should be rerun. Also, in determining the geographic position of the line in terms of North American datum, the final computations showed that the work would be considerably strengthened by a small additional amount of control to tie the line at a few more places to triangulation stations of the Geodetic Survey of Canada. This the commissioners decided to do.

These minor operations and the setting of a few monuments constituted the final field work which was done from time to time by small parties of the two sections of the commission during the field seasons 1920 to 1923.

In 1920 a Canadian party reset and relocated monuments 277, 278, 279, 280, 281, and 281-A near Lac Frontiere, Quebec, where, due to a misunderstanding, these monuments had been placed off the line. In restoring the monuments to the line, it was necessary to move them only short distances, varying from a few inches to about 3 feet. At the same time the party marked the intersection of the Southwest and the South Lines at Lac Frontiere with a concrete post set flush with the ground.

The work of running out in the field the boundary line in Halls Stream was done in 1921 by a United States party of seven men. Work was begun on July 5, and each turning point of the boundary, as agreed upon by the commissioners and indicated upon the map, was temporarily marked with a stake driven into the bed of the stream. These points were then tied to a transit and tape traverse which was run between the permanent reference monuments along the shore, beginning at monument 518 near the mouth of the stream and ending at monument 507 at the head of the stream. This work was completed on October 22.

Similarly, in 1922, the boundary in the Southwest Branch of the St. John River was run out by a Canadian party assisted by a representative of the United States commissioner. The turning points of the boundary were temporarily located in the stream and tied to a traverse between the permanent reference monuments on the banks, the procedure being similar in all respects to the work done on Halls Stream. The party began work near Little St. John Lake on June 5 and finished on September 10, at the intersection of the Southwest Branch of the St. John River and the South Line.

In 1922 a United States party remeasured the traverse of the boundary line between a number of monuments on the portion of the Highlands boundary from the head of Halls Stream to the Canadian Pacific Railway crossing. This work was begun on May 15 and completed on June 30.

The chief of this party then acted as United States representative on the Canadian party on the Southwest Branch of the St. John River, and while with this party did additional triangulation control to tie the survey of the boundary at monuments S-73 and S-74 on the Southwest Branch of the St. John River, monuments 303 and 307 on the South Line, and monuments 269 and 273 on the Southwest Line, to triangulation stations of the Geodetic Survey of Canada.

After the completion of the work on the Southwest Branch of the St. John River, he ran a line of levels along the Kennebec Road northward from a United States Geological Survey bench mark near Jackman, Me., to boundary survey bench marks at monuments 351, 351-A, 351-B, and 352. This was for the purpose of checking the long line of boundary levels from St. Pamphile, Quebec, to the Canadian Pacific Railway at Boundary Siding.

In 1923 a Canadian party went to the field on June 18 and did additional control triangulation necessary to tie the western end of the traverse along the New York-Quebec boundary to triangulation stations of the Geodetic Survey of Canada. They also connected that part of the survey to two stations of the United States Lake Survey and to three stations of the International Waterways Commission. This work was completed on July 31.

On September 13 a Canadian party, assisted by a United States representative, went to the section of the Highlands boundary which had been surveyed by the Canadian section of the commission, and remeasured some of the boundary traverses. This checking by the Canadians was similar to that done during the previous year by the United States party on the Highlands. Besides rerunning certain parts of the line, the party added to the topographic maps of the boundary the railroad at Lac Frontiere, Quebec, and two highways which had recently been constructed across the line. The party finished work on November 1.

This work in 1923 completed the field work on the boundary from the source of the St. Croix River to the St. Lawrence River.

During the fall of 1923, the commissioners, Mr. E. Lester Jones, for the United States, and Mr. J. J. McArthur, for His Britannic Majesty, made a final inspection of the line.

The personnel connected with the several field parties during the seasons 1920 to 1923, inclusive, was as follows:

For His Britannic Majesty: Engineer in charge of the work, J. D. Craig, D. L. S.; chiefs of party, Thos. Fawcett, D. T. S., J. A. Pounder, D. L. S.; assistants, G. T. Prinsep, D. L. S., D. F. Chisholm.

For the United States: Engineer in charge of the work, James H. Van Wagenen; chiefs of party, Jesse Hill, F. H. Brundage; assistants, E. R. Martin, George Scott.





## SUMMARY OF PERSONNEL

## SUMMARY OF PERSONNEL ENGAGED

Year	Location of work	Section of commission	Personnel engaged	Work in charge of—	Chiefs of parties and		
					Triangulation	Precise traverse	Boundary traverse
1902	New York - Quebec (West Line).	Canada	11	C. A. Bigger, D. L. S.		C. A. Bigger, D. L. S. C. A. Bourget, D. L. S. F. W. O. Werry	
		United States	9	H. P. Willis			
1906	Vermont-Quebec (West Line).	Canada	12	G. C. Rainboth, D. L. S.			G. L. Rainboth
		United States	11	J. B. Baylor			R. H. Blain J. P. Locke
1907	Vermont-Quebec (West Line).	Canada	13	G. C. Rainboth, D. L. S.			W. J. Sharpe
		United States	14	J. B. Baylor			R. H. Blain J. P. Locke
1908	Maine-New Brunswick (North Line).	Canada	18	G. C. Rainboth, D. L. S.			W. J. Sharpe
		United States	15	J. B. Baylor			R. H. Blain J. P. Locke
1909	Maine-New Brunswick (St. John River).	Canada	17	G. C. Rainboth, D. L. S.	G. L. Rainboth		
		United States	10	J. B. Baylor	R. H. Blain W. B. Gilmore		
1910	Maine-New Brunswick (St. John and St. Francis Rivers).	Canada	16	G. C. Rainboth, D. L. S.	G. L. Rainboth, D. L. S.		
		United States	14	J. B. Baylor	R. H. Blain L. J. Young		
1911	Maine-New Brunswick and Quebec (St. Francis River and Southwest Line).	Canada	19	Thos. Fawcett, D. T. S.	G. L. Rainboth, D. L. S. I. R. Pounder J. A. Pounder		
		United States	24	J. B. Baylor	R. H. Blain F. H. Brundage		
1912	Maine-Quebec (Southwest Line).	Canada	20	Thos. Fawcett, D. T. S.		I. R. Pounder J. A. Pounder	
		United States	21	J. B. Baylor	R. H. Blain	R. H. Blain	
1913	Maine-Quebec (Southwest and South Lines and Southwest Branch of St. John River).	Canada	23	Thos. Fawcett, D. T. S.	G. L. Rainboth, D. L. S. J. A. Pounder, D. L. S.		
		United States	29	J. B. Baylor		R. H. Blain	
1914	Maine-Quebec (Highlands and Southwest Branch of St. John River).	Canada	26	Thos. Fawcett, D. T. S.		G. L. Rainboth, D. L. S. J. A. Pounder, D. L. S.	G. L. Rainboth, D. L. S.
		United States					
	New Hampshire-Quebec (Halls Stream).	United States	17	J. E. McGrath	J. E. McGrath R. H. Blain		



## ON THE FIELD WORK, 1902-1923

assistants engaged on—					Section of commission	Location of work	Year
Leveling	Topography	Vista cutting	Monumenting	Inspection			
				C. A. Bigger, D. L. S.	Canada	New York - Quebec (West Line).	1902
			H. P. Willis	H. P. Willis	United States		
O. Sills	F. H. Mackie, D. L. S.	A. J. Rainboth	B. Foley	G. C. Rainboth, D. L. S.	Canada	Vermont - Quebec (West Line).	1906
	O. B. French			J. B. Baylor	United States		
A. M. Phillips	G. L. Rainboth	A. J. Rainboth	B. Foley	G. C. Rainboth, D. L. S.	Canada	Vermont - Quebec (West Line).	1907
	C. H. Van Orden			J. B. Baylor	United States		
M. F. Cochrane, D. L. S.	G. L. Rainboth I. R. Pounder C. R. Westland	A. J. Rainboth	B. Foley	G. C. Rainboth, D. L. S.	Canada	Maine - New Brunswick (North Line).	1908
				J. B. Baylor	United States		
W. M. Dennis	I. R. Pounder J. A. Pounder		B. Foley	G. C. Rainboth, D. L. S.	Canada	Maine - New Brunswick (St. John River).	1909
	F. H. Brundage J. P. Locke			J. B. Baylor	United States		
G. L. Rainboth, D. L. S.	I. R. Pounder J. A. Pounder		B. Foley	G. C. Rainboth, D. L. S.	Canada	Maine - New Brunswick (St. John and St. Francis Rivers).	1910
	F. H. Brundage J. P. Locke			J. B. Baylor	United States		
G. L. Rainboth, D. L. S.	I. R. Pounder J. A. Pounder		B. Foley	Thos. Fawcett, D. T. S.	Canada	Maine - New Brunswick and Quebec (St. Francis River and Southwest Line).	1911
J. P. Locke	F. H. Brundage J. P. Locke	Joseph Mercier		J. B. Baylor	United States		
G. L. Rainboth, D. L. S.	I. R. Pounder J. A. Pounder		B. Foley	Thos. Fawcett, D. T. S.	Canada	Maine-Quebec (Southwest Line).	1912
J. P. Locke	F. H. Brundage J. P. Locke	Joseph Mercier		J. B. Baylor	United States		
G. L. Rainboth, D. L. S.	J. A. Pounder, D. L. S. D. F. Chisholm		B. Foley	Thos. Fawcett, D. T. S.	Canada	Maine-Quebec (Southwest and South Lines and Southwest Branch of St. John River).	1913
J. R. Sinclair	W. C. Guerin F. H. Brundage	Joseph Mercier		J. B. Baylor	United States		
D. F. Chisholm	J. A. Pounder, D. L. S. D. F. Chisholm	G. L. Rainboth, D. L. S.	B. Foley	Thos. Fawcett, D. T. S.	Canada	Maine-Quebec Highlands and Southwest Branch of St. John River).	1914
				Jas. H. Van Wageningen (1915).	United States		
J. R. Sinclair	F. H. Brundage		J. R. Sinclair	J. E. McGrath	United States	New Hampshire-Quebec (Halls Stream).	

## SUMMARY OF PERSONNEL

## SUMMARY OF PERSONNEL ENGAGED

Year	Location of work	Section of commission	Personnel engaged	Work in charge of—	Chiefs of parties and		
					Triangulation	Precise traverse	Boundary traverse
1915	Maine - Quebec and New Brunswick (St. Francis and St. John Rivers).	Canada	9	Thos. Fawcett, D. T. S.	J. L. Rannie, D. T. S. V. R. Davies		
	Maine-Quebec (Highlands).	Canada	26	Thos. Fawcett, D. T. S.		J. A. Pounder, D. L. S. D. F. Chisholm	G. L. Rainboth, D. L. S.
		United States	51	Jas. H. Van Wagenen	Jesse Hill H. C. O. Clarke		Jesse Hill W. F. Lehfelt
	New Hampshire-Quebec (Halls Stream).	United States	22	J. E. McGrath	R. H. Blain Jesse Young		
1916	Maine-New Brunswick (St. John River and North Line).	Canada	8	Thos. Fawcett, D. T. S.	J. L. Rannie, D. T. S. J. Bowie		
	Maine and New Hampshire-Quebec (Highlands).	Canada	25	Thos. Fawcett, D. T. S.		C. R. Westland, D. L. S.	G. L. Rainboth, D. L. S.
		United States	106	Jas. H. Van Wagenen	Jesse Hill F. H. Brundage N. W. Smith M. E. Lutz S. O. White R. C. Snyder Hollis Young G. A. Perry		W. F. Lehfelt George Brown G. A. Perry M. E. Lutz
1917	Maine-Quebec (Highlands).	Canada	22	Thos. Fawcett, D. T. S.		C. R. Westland, D. L. S.	G. L. Rainboth, D. L. S.
		United States	9	Jas. H. Van Wagenen			G. A. Perry
	Vermont-Quebec (West Line).	Canada	10	J. D. Craig, D. L. S.	F. Lambert, D. L. S. G. T. Prinsep, D. L. S. J. Sheppard J. Bowie T. P. Reilly		
		United States					
	New York-Quebec (West Line).	Canada	10	J. D. Craig, D. L. S.	F. Lambert, D. L. S. G. T. Prinsep, D. L. S. J. Sheppard T. P. Reilly		
		United States	11	Jas. H. Van Wagenen			
	Maine-New Brunswick (St. John River).	United States	9	Jas. H. Van Wagenen	F. H. Brundage		
1918	Maine-Quebec (Highlands).	Canada	20 15	Thos. Fawcett, D. T. S. J. D. Craig, D. L. S.		C. R. Westland, D. L. S. (T. C. Dennis, D. L. S. G. T. Prinsep, D. L. S.)	G. L. Rainboth, D. L. S. T. C. Dennis, D. L. S.
		United States					



## ON THE FIELD WORK, 1902-1923—Continued

assistants engaged on—					Section of com- mission	Location of work	Year
Leveling	Topography	Vista cutting	Monumenting	Inspection			
					Canada	Maine-Quebec and New Brunswick (St. Francis and St. John Rivers).	1915
D. F. Chisholm	J. A. Pounder, D. L. S. D. F. Chisholm	G. L. Rainboth, D. L. S. J. A. Pounder, D. L. S.	B. Foley	Thos. Fawcett, D. T. S.	Canada	Maine-Quebec (Highlands).	
R. K. Lynt George Brown	H. C. O. Clarke Lee Morrison R. K. Lynt E. V. Perkinson	Alex McDiarmid	J. A. Stewart	Jas. H. Van Wagenen.	United States		
J. R. Sinclair F. H. Brundage	F. H. Brundage		J. R. Sinclair		United States	New Hampshire-Quebec (Halls Stream).	
					Canada	Maine-New Brunswick (St. John River and North Line).	1916
L. C. Nesham	C. R. Westland, D. L. S. L. C. Nesham	G. L. Rainboth, D. L. S. C. R. Westland, D. L. S.	B. Foley	Thos. Fawcett, D. T. S.	Canada	Maine and New Hampshire-Quebec (Highlands).	
Walter McCrear J. A. Buchanan	H. C. O. Clarke W. C. Guerin Lee Morrison E. V. Perkinson E. C. Guerin C. E. Carl	J. E. Bump Joseph Mercier	J. A. Stewart Jesse Young	Jas. H. Van Wagenen.	United States		
W. Smith	C. R. Westland, D. L. S.	G. L. Rainboth, D. L. S. C. R. Westland, D. L. S.	B. Foley	J. D. Craig, D. L. S. (1918).	Canada	Maine-Quebec (Highlands).	1917
		G. A. Perry	J. A. Stewart	Jas. H. Van Wagenen.	United States		
					Canada	Vermont-Quebec (West Line).	
				Jas. H. Van Wagenen.	United States		
				J. D. Craig, D. L. S.	Canada	New York-Quebec (West Line).	
J. A. Buchanan	Lee Morrison C. E. Carl		H. F. Eagan	Jas. H. Van Wagenen.	United States		
	F. H. Brundage		H. B. Sullivan		United States	Maine-New Brunswick (St. John River).	
J. N. Ingersoll	C. R. Westland, D. L. S.	G. L. Rainboth, D. L. S. C. R. Westland, D. L. S.	B. Foley		Canada	Maine-Quebec (Highlands).	1918
R. Polleys	G. T. Prinsep, D. L. S.	T. P. Reilly	B. Foley				
				Jas. H. Van Wagenen (1919).	United States		

## SUMMARY OF PERSONNEL ENGAGED

Year	Location of work	Section of commission	Personnel engaged	Work in charge of--	Chiefs of parties and		
					Triangulation	Precise traverse	Boundary traverse
1919	Maine-Quebec (Highlands).	Canada	25	Thos. Fawcett, D. T. S.		J. A. Pounder, D. L. S.	J. A. Pounder, D. L. S.
			22	J. D. Craig, D. L. S.	T. C. Dennis, D. L. S. G. T. Prinsep, D. L. S.	T. C. Dennis, D. L. S.	L. La Ferme
		United States					
1920	Maine-Quebec (South Line).	Canada	6	Thos. Fawcett, D. T. S.			
		United States					
1921	New Hampshire-Quebec (Halls Stream).	United States	8	F. H. Brundage			F. H. Brundage
1922	Maine and New Hampshire-Quebec (Southwest Branch of St. John River, South Line, Southwest Line, and the Highlands).	Canada	7	J. A. Pounder, D. L. S.			J. A. Pounder, D. L. S. D. F. Chisholm
		United States	4	Jesse Hill	Jesse Hill		Jesse Hill E. R. Martin
	New Hampshire-Quebec (Halls Stream).	United States	4	F. H. Brundage			
1923	New York-Quebec (West Line).	Canada	4	J. A. Pounder, D. L. S.	J. A. Pounder, D. L. S. G. T. Prinsep, D. L. S.		
	Maine-Quebec (Highlands).	Canada	6	J. A. Pounder, D. L. S.			J. A. Pounder, D. L. S.
		United States					Jesse Hill



## ON THE FIELD WORK, 1902-1923—Continued

assistants engaged on—					Section of com- mission	Location of work	Year
Leveling	Topography	Vista cutting	Monumenting	Inspection			
J. N. Ingersoll R. Tuite	C. R. Westland, D. L. S. J. N. Ingersoll G. T. Prinsep, D. L. S.	J. A. Pounder, D. L. S. T. P. Reilly	B. Foley		Canada	Maine-Quebec (High- lands).	1919
				Jas. H. Van Wage- nen.	United States		
			Thos. Fawcett, D. T. S.		Canada	Maine-Quebec (South Line).	1920
				F. H. Brundage (1922).	United States		
					United States	New Hampshire-Que- bec (Halls Stream).	1921
				J. A. Pounder, D. L. S.	Canada	Maine and New Hampshire-Quebec (Southwest Branch of St. John River, South Line, South- west Line, and the Highlands).	1922
Jesse Hill				Jesse Hill	United States		
			F. H. Brundage George Scott		United States	New Hampshire-Que- bec (Halls Stream).	
					Canada	New York-Quebec (West Line).	1923
					Canada	Maine-Quebec (High- lands).	
				Jesse Hill	United States		

## DESCRIPTION OF FIELD AND OFFICE METHODS AND RESULTS

### HORIZONTAL CONTROL

The horizontal control for the topographic surveys and for the determination of the geographic positions of the monuments and turning points of the boundary from the source of the St. Croix River to the St. Lawrence River consists of schemes of major and minor triangulation, and precise, secondary,<sup>8</sup> and tertiary<sup>9</sup> grades of traverse, which are connected with the triangulation schemes of the Geodetic Survey of Canada and the United States Coast and Geodetic Survey. The general plan of the control is shown on 14 triangulation and precise traverse sketches, together with an index sketch, which accompany the report under separate cover. The geographic positions and descriptions of the triangulation stations, and of the stations of the precise traverses not run directly on the boundary line are listed in Appendix V, pages 345 to 483. The control stations which are marked by boundary monuments or reference monuments are listed on pages 139 to 266.

### GENERAL DESCRIPTION

The North Line, the St. John River, and the St. Francis River are covered by a scheme of major triangulation, about 180 miles in length, which is connected with three triangulation stations ("Kennedy," "Pole Hill," and "Spring Hill") of the United States Coast and Geodetic Survey near the southern end of the North Line, and with two stations ("Frontier" and "Parke") of the Geodetic Survey of Canada near Lake Pohenagamook. In addition to the ties to precise triangulation at both ends, there is included in this scheme, midway between the ends, a Laplace station and a  $3\frac{1}{2}$ -mile base.

The discrepancy developed by the closure of the circuit formed by the above triangulation and the triangulation of the United States Coast and Geodetic Survey and the Geodetic Survey of Canada, was  $0''.423$  of latitude and  $0''.213$  of longitude, equivalent to 13.81 meters. As the circuit has a total length of about 1,000 miles, this discrepancy represents a proportional error of slightly less than 1 part in 100,000. This, however, was distributed only in the boundary triangulation.

Along the North Line the geographic positions of 13 monuments, averaging about 6 miles apart, were determined by the major triangulation. Secondary traverse lines were run along the boundary, and these traverses were adjusted<sup>10</sup>

<sup>8</sup> Carefully run transit and steel-tape traverse which checked with the triangulation control points within 1 part in 5,000; used on the North Line and the Vermont-Quebec line.

<sup>9</sup> Transit and steel-tape traverse which checked with the triangulation within 1 part in 1,000; includes the boundary traverse of the Southwest Branch of the St. John River, the Highlands, and Halls Stream.

<sup>10</sup> For methods of adjustment of traverses see pp.104 to 106.



to agree with the positions of the monuments determined by triangulation. The angles at the deflection points of this traverse were measured with a  $6\frac{1}{4}$ -inch Berger repeating theodolite, and the distances were measured in one direction with steel tape and in both directions with stadia.

Along the St. John River, a scheme of minor triangulation, which consisted of quadrilaterals, was extended from the North Line to the mouth of the St. Francis River and was connected with the major triangulation at 15 points, averaging about 5 miles apart. The signals were, in general, 8-foot braced poles 2 by 2 inches in cross section. Angles measured with the  $6\frac{1}{4}$ -inch or 7-inch Berger theodolites used by the United States parties were repeated six times with telescope direct and six times reversed. Those measured with the direction theodolites used by the Canadian parties were read on three positions of the circle, a direct and reverse pointing being made in each position. Five bases were measured with a high degree of accuracy with steel and invar tapes. The sites for triangulation stations were so chosen that they would be suitable locations for monuments to reference the turning points of the boundary line, which was laid down by the commissioners on the copper plates of the engraved maps as a series of straight-line courses in the river to conform with the course of the curved boundary shown on the maps of the survey of 1843. The reference monuments were generally placed so that each would be on line with a boundary turning point and another reference monument, and the geographic positions of the turning points of the boundary were determined by scaling from the copper plates the distances from the turning points to their respective reference monuments, the positions of which had been determined by triangulation.

The immediate control of the boundary along the St. Francis River was by a scheme of minor triangulation extended northward from the minor triangulation



Triangulation, St. John River, 1910



along the St. John River, using similar methods but reducing the size of the quadrilaterals to keep the stations near the banks of the river. Eight bases were measured and two azimuth determinations were made, and the scheme was connected with the major triangulation at five points, averaging about 6 miles apart. This triangulation determined the positions of the boundary reference monuments, which, in nearly all cases, were set at triangulation stations. It also furnished the control for making the map of the river upon which the commissioners marked the course of the boundary line. The geographic positions of the boundary turning points were then determined by scaling their latitudes and longitudes from the copper plates of the engraved maps, and from these positions the relation of the turning points to the boundary reference monuments was computed.

From Lake Pohenagamook to the Canadian Pacific Railway crossing of the boundary at monument 402, a distance of about 200 miles, the control consists of precise traverse except for about 13 miles along the Southwest Branch of the St. John River, where minor triangulation was used. This combined scheme of precise traverse and minor triangulation is connected with triangulation stations of the Geodetic Survey of Canada at eight points, averaging about 28 miles apart. The discrepancies at these tie points between the distances determined by the primary



Type of signal and instrument used in minor triangulation of St. Francis River



triangulation and those determined by the boundary control varied from 1 part in 21,000 in the rougher section of the country to 1 part in 145,000 in the more level portion, the average discrepancy being about 1 part in 50,000. The discrepancies were distributed by least square adjustment to make the boundary control agree with the primary triangulation.

From monument 402, on the Highlands, to monument 650-A, near the east end of the New York-Quebec line, the boundary is controlled by a scheme of major triangulation which is connected with the primary triangulation of the Geodetic Survey of Canada at five stations, averaging about 35 miles apart. The positions of all the cast-iron monuments from No. 402 to the source of Halls Stream were determined directly from this major scheme.

The angles of the main scheme of this triangulation were observed with 6 $\frac{1}{4}$ -inch or 7-inch Berger theodolites, repeating each angle at least six times with the telescope direct and six times reversed. Angles for determining the positions of subsidiary points, such as boundary monuments not included in the main scheme, were repeated three times with the telescope direct and three times reversed. The longest line over which observations were made was 49 miles in length. This and several other long lines were observed at night, using lights at the points observed upon.



Triangulation station "Talon"; major control near English Lake



Fire lookout tower, Hardwood Mountain, Me., used as triangulation station

Due to the fact that many of the monuments along the Highlands are in saddles of the boundary ridge, it was frequently impossible to observe upon them directly from a sufficient number of stations. In such cases, the positions of the monuments were determined by observing on eccentric signals, consisting of flags placed in the tops of tall

trees on the nearest high ground. In each location of this kind, the distance between the monument and a point directly under its eccentric signal was measured, a line of sight was opened from the monument to a triangulation station, and the angle at the monument between the flag and the triangulation station was measured. Such line was necessary not only for locating the monument but for obtaining a back sight for running the boundary traverse to the next monument ahead, as will be described later.

The signals at the triangulation stations where observations on other stations could be made from the ground were tall, braced poles. But where considerable line cutting was necessary, such as on the New Hampshire-Quebec line, where the hills along the Highlands are flat-topped and wooded, it was found more economical to build towers. There were 12 such towers constructed, with an average height of 45 feet. Each of these consisted of a tripod for the instrument, surrounded by an independent structure for the sup-



Native timber triangulation tower, western end of Highlands boundary



Ideal triangulation station on a bare-topped mountain.

port of the observer. They were built of green timber cut in the vicinity of the triangulation stations.

Along Halls Stream the positions of the boundary reference monuments were determined directly from a scheme of minor triangulation, which included at intervals six bases measured along the sides of quadrilaterals. This scheme of small quadrilaterals with stations close to the stream was connected with the major triangulation at four points, averaging 5 miles apart. The angles on all this work were measured with a  $6\frac{1}{4}$ -inch Berger theodolite, repeating each angle six times with telescope direct and six times reversed.

Along the Vermont-Quebec line the positions of 27 of the monuments, averaging about



4 miles apart, were determined from a major scheme of triangulation which was tied to stations "Hereford," "Owl's Head," and "St. Armand," of the primary triangulation of the Geodetic Survey of Canada. The positions of the other boundary monuments were obtained by traverses run along the line between the monuments fixed by the triangulation.

The New York-Quebec line traverse, which was run in 1902 under the direction of the State engineer of New York and the Canadian boundary commissioner,<sup>11</sup> was at that time controlled by astronomic observations for azimuth and latitude made at nine stations distributed along the boundary from Rouses Point to the St. Lawrence River. These included eight determinations of azimuth and three determinations of latitude. The precision of the azimuth observations is shown by the computed probable errors of the results, which range from  $0''.14$  to  $1''.08$ . The probable errors of the latitude determinations range from  $0''.12$  to  $0''.40$ .



Type of low tripod and scaffold used on some of the mountain tops

The stations were located as follows:

Station No. 1: Latitude, on boundary line, 477 feet west of monument 648.

Station No. 2: Azimuth, on traverse, opposite monument 650-A.

Station No. 3: Azimuth, on traverse, 239 feet west of monument 657.

Station No. 4: Azimuth, on traverse, 27 feet west of monument 661.

Station No. 5: Latitude and azimuth, on traverse, 22 feet east of monument 678.

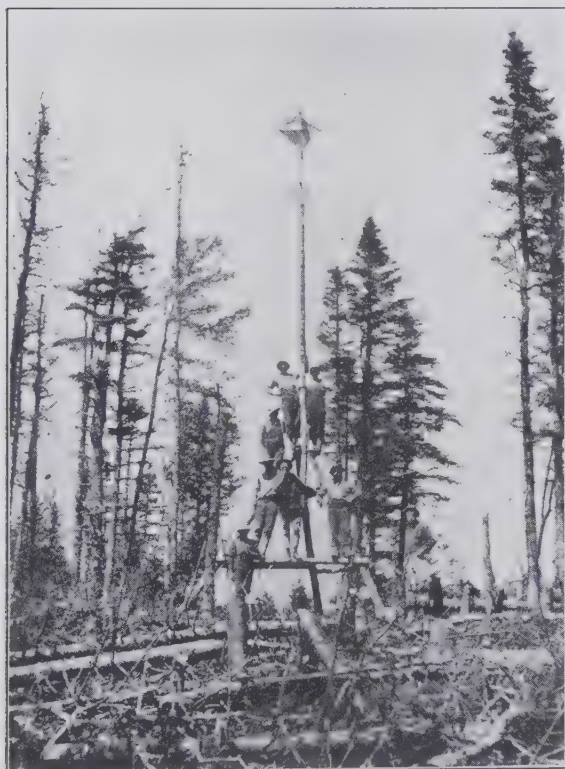
Station No. 6: Azimuth, on traverse, 9 feet east of monument 699.

Station No. 7: Azimuth, on traverse, 824 feet west of monument 731.

Station No. 8: Azimuth, on traverse, 1,344 feet west of monument 740.

Station No. 9: Latitude and azimuth, on traverse, 786 feet east of monument 760.

In 1917 and 1923 this traverse was connected with the triangulation of the Geodetic Survey of Canada at four points, averaging about 20 miles apart, and the traverse lengths were adjusted to agree with the triangulation and placed on the North American datum.



Triangulation reconnaissance party at station "Dennison," Maine-Quebec Highlands, 1916

<sup>11</sup> Chief Astronomer and (Canadian) Boundary Comm'r, Ann. Rept., 1904, pp. 22-30; New York State Engineer and Surveyor, Ann. Rept., 1902, pp. 67-102. Ibid., 1904, pp. 350-363.

## METHODS USED ON PRECISE TRAVERSE

This form of control was first used on the boundary in 1912 along the Southwest Line westward from Lake Pohenagamook. It was selected in preference to triangulation, for the reason that the country was heavily wooded and not of sufficient relief for doing triangulation without erecting high towers and cutting considerable timber to open lines of sight between triangulation stations and to the boundary monuments. Owing to the fact that many of the monuments on this part of the line are in valleys, on the banks of streams, difficult to see from distant stations, it was thought that a direct form of control run in the boundary vista from monument to monument would be the economical one to use. Furthermore, a precise traverse on the boundary through this wooded country would furnish more available control for mapping the topography than would triangulation stations outside the area to be mapped.

The method of running the precise traverse was similar to that used in measuring base lines for major triangulation. The measuring was done with 100-foot and 50-meter invar tapes. During the season of 1912 it was found that on the rough ground encountered, the 100-foot tapes were preferable to the 50-meter tapes, and this experience led to the adoption of the 100-foot tapes exclusively for this purpose during the seasons which followed.

The 100-foot tapes were supported at the ends and were drawn to a tension of 15 kilograms, using spring balances which were corrected frequently to agree with a standard balance kept in camp. Two mercury thermometers were fastened to the tape by clips a few feet from each end and were read for each tape length. The line was measured forward and backward, one measurement generally being made in the forenoon and the other in the afternoon. The tapes were frequently compared in length with a tape kept in camp for this purpose, using, when the comparisons were made, balances and thermometers that were employed in the field.

The procedure of staking out and measuring the line was as follows: A small transit was set over one monument, sighted on the other, and used to line in hubs, which were stout stakes from 3 to 6 feet long driven into the ground and solidly braced so that the center of each hub was one tape length from the center of the preceding hub. The preliminary taping necessary to set the hubs so that they would be exactly one invar tape length apart was done with 100-foot steel tapes and spring balances which had been compared with the standardized tapes and



Precise traverse line showing hub and vista



balances used on the precise measurement. A strip of thin copper about 3 inches long and one-half inch wide, upon which to mark the invar tape lengths, was then nailed on the top of each hub. Before attaching these strips, the tops of the hubs were sawed off and beveled, so as to permit the marked end of the tape under tension to lie in the same plane, parallel to and against the edge of the copper strip.

The precise measurement was made by a party of five men. The man in charge and an assistant were at the forward end of the tape, two men were stationed at the rear end, and the fifth was at the middle to support the tape when it was being moved forward along the line and to clear it from brush before the measurements were made. The measuring was done by the rear observer and his assistant holding the rear end of the tape while the assistant in front pulled steadily until the spring balance recorded the proper tension. As soon as the rear observer had the end of the tape beside the rear mark he called "Stick" or "Good." The forward observer watched both the spring balance and the front end of the tape, and when both were steady and the balance indicated the proper tension he made a mark on the copper strip opposite the mark on the front end of the tape with an awl or knife and called "Stuck" or "Good." Both thermometers were then read and the temperatures recorded. If the forward end of the tape fell ahead or behind the copper strip, as it occasionally did, a mark was made on the strip and the "set forward" or "set back" was measured with a scale and dividers.

The monuments were located by measuring the distance from each monument to the nearest hub with a steel tape. This location was checked by also measuring the distance from the monument to the next hub on the other side.

The elevation of the top of every hub was determined by levels which were run along the precise traverse line to furnish data for reducing the measured length to sea level, applying grade corrections, and for supplying elevations for the vertical control of the topographic mapping.

The above methods were used along the Southwest and South Lines traversed by the United States and Canadian parties in 1912 and 1913, and on the upper part of the Southwest Branch of the St. John River and along the portion of the Highlands traversed by the Canadian parties in 1914 to 1919, inclusive.

The precise traverse along the river and along the Highlands was run as a series of long straight-line courses paralleling the general course of the boundary. On the river portion of the traverse where the ground was flat it was easy to get lines of reasonable length; in fact, reconnaissance for this work was done almost entirely by use of the original boundary maps. When the Highlands were reached, however, this was no longer possible, and the reconnaissance had to be made on the ground in order that deflection points could be so chosen that they would be inter-visible and that the courses would be fairly long and reasonably close to the boundary line. It was frequently possible by locating the deflection points upon the tops of hills to see over much of the intervening timber and thus to dispense with considerable line cutting, it being necessary in such cases to open only a narrow line in which to do the taping.

The angles of the precise traverse along the Southwest Branch of the St. John River and on the Highlands were measured with a 6¼-inch repeating theodolite

or with a direction theodolite with the same degree of accuracy used on major triangulation. At intervals of about one-half mile on the river portion, offset lines were run to hubs across the river. At each offset a hub was carefully lined-in on the traverse, and at this hub the angle between the main line and the hub at the end of the offset line across the river was carefully measured. The length of the offset was then measured by the same methods used on the main line. The hubs at each end of the offset line were later replaced by monuments, which were used as permanent monuments to reference the boundary line through the stream.

On the Highlands portion of the line, similar offsets were run to all boundary monuments. These offsets were comparatively short and averaged less than 1 mile apart.

#### METHODS OF BOUNDARY LOCATION BY TERTIARY TRAVERSE

The geographic positions of the boundary turning points in the Southwest Branch of the St. John River and in Halls Stream, and the positions of the small intermediate monuments on the Highlands, were determined by a tertiary grade of transit and tape traverse run between fixed points about 1 mile apart, the positions of which had been determined by triangulation or precise traverse.

These short traverses along the Southwest Branch of the St. John River and along Halls Stream were run as follows: On the Southwest Branch of the St. John, where the reference monuments are, as a rule, in pairs, one on each side of the river, the transit was set over one of the monuments, sighted on the other monument of the pair, and a hub driven at the river bank on a line between the monuments. The distance from one of the monuments to the hub was then chained, the transit was set over the hub and, using one of the monuments as a back sight, the traverse was run along the stream to an intersection with the line joining the next pair of monuments where a hub was similarly located to mark the last station of this traverse and the first station of the next. On Halls Stream, where the reference monuments are not in pairs, the method was the same except that the back sights for starting the traverses had to be obtained by sighting on other stations of the control scheme from which the reference monuments had been located.

Due to the fact that there was much dry weather in those localities during the seasons of 1921 and 1922 and that the water in the streams was low, many of the traverse stations were placed in the beds of the streams, thus materially reducing the amount of line cutting. The traverse stations were marked with wooden hubs about 3 feet long driven solidly in the ground and in the top of each was placed a thin peg or a nail to set the transit over and to sight on.

The angles of the traverses on the Southwest Branch were measured with a 6 $\frac{1}{4}$ -inch Berger theodolite graduated to 10 seconds, using one pointing direct and one reversed, and the distances were chained with a 500-foot steel tape. The angles on Halls Stream were measured with a 4-inch Berger theodolite graduated to minutes, using two pointings direct and two reversed, and the courses were measured forward and backward with a 100-foot or 200-foot steel tape. All chaining was done with an accuracy of 1 part in 1,000. Before moving camp the traverses in each locality were checked to make certain that the closing errors were within the allowable limit.



If the error of a closure was greater than 1 part in 1,000, the angles were re-observed and the courses rechained.<sup>12</sup>

The turning points of the boundary were located from the above traverses in the following manner: The chief of party or his assistant selected the turning points in the stream so that the right-line courses of the boundary between successive points would conform as nearly as practicable to the original curved-line boundary shown on the old maps of the survey of 1843-1845. Each point was then temporarily marked by driving a blazed stake into the bed of the stream. From the nearest traverse station a line was cleared to this stake, the angle observed, and the distance measured by stadia or chaining. There was also noted in the record book the distances from the turning point to both banks of the stream.



Measuring boundary deflection angles, Highlands, 1917

In laying down the boundary from one cast-iron monument to the next along the Highlands, the right-line distance between the original monuments was calculated by latitudes and departures, using in this computation the angles and courses given in the old traverse notes. This distance was then compared with the true right-line distance, obtained by triangulation or precise traverse, and the discrepancy found was distributed into the several courses of the old traverse in proportion to their lengths, except on that portion of the boundary between monuments 314 and 392, where the discrepancy was distributed partly in the distances and partly in the angles.

The old notes corrected in the above manner were then used for running out the boundary traverse between monuments. The angles and back sights used in turning off the first courses of these traverses were obtained in each case as follows: First, there was computed from the triangulation or precise traverse notes the angle between a distant triangulation or precise traverse station and a right line to the monument ahead; there was then added to this angle, or subtracted, as the case might be, the angle between the first course of the traverse and the right line to the next monument, as determined from the adjusted latitude and departure computation made from the old notes.

Using the distant station as a back sight, the computed angle was then turned off at the monument and the traverse run out. The closure of the traverse on the monument ahead depended entirely upon the accuracy of the field work and not upon the correctness of the old notes.

<sup>12</sup> For method of final adjustment of the traverses see "Adjustment of special forms of traverse," p. 104.

In case this traverse failed to place the boundary line on the crest of the watershed or along the site of the original vista, which could be traced across the low places by following the line of old stumps or by noting the character of the second-growth timber, a large error in one of the angles or in one of the courses given in the old notes was looked for. Such errors were generally multiples of  $10^\circ$ , or of chain lengths, and were found by searching for the change that should be made in an angle or course that would modify the location of the traversed line to make it agree closely with the original vista or the crest of the watershed. Many times, however, such corrections could not be found, in which cases the relocation of the line had to depend entirely on the course of the ridge or traces of the original vista.

On the part of the Highlands surveyed by the Canadian parties the lengths of the courses of the boundary traverse were measured with a 66-foot steel tape graduated in links. The angles were turned off with a 4-inch theodolite graduated to minutes. On the portion surveyed by the United States parties, distances were measured with a 100-foot steel tape. The angles were laid off with a 4-inch Berger theodolite graduated to minutes. If a traverse did not close on the monument ahead within an error of less than 1 part in 1,000, it was rerun. Where the closing error was too large, it was generally due to "breaking chain" on steep slopes, and for this reason a considerable part of the taping was done along the slope, using a 300-foot steel tape and measuring the slope angle with a theodolite or a clinometer.

After the deflection points of the traverses between original monuments on the Highlands had been permanently marked with 3-inch bronze disks set in concrete or in solid rock, a considerable number of the angles which had been turned off at these points with the 4-inch theodolites when the traverses were run were remeasured by repetition with a  $6\frac{1}{4}$ -inch Berger theodolite, using one pointing direct and one reversed. The traverses were then adjusted in the office by least squares to conform with the fixed positions of the cast-iron monuments.

#### ADJUSTMENT OF SPECIAL FORM OF TRAVERSE IN WHICH THE ACCURACY OF ANGLE MEASUREMENT IS GREATER THAN THAT OF CHAINING

In many of the tertiary traverses (those between boundary monuments on the Highlands and between boundary reference monuments along the Southwest Branch of the St. John River and Halls Stream) the accuracy of the measurement of the angles was considerably greater than that of chaining, and in this class of traverse lines the following method of adjustment was used:

The angles were adjusted to close the figure by distributing the angular error equally among the angles. The angles were then assumed to be correct and the traverse was adjusted assuming that all the remaining discrepancy was due to inaccuracy in chaining.

Let  $l_1, l_2, l_3, \dots, l_n$ , be the corrected lengths of the courses.

Let  $\phi_1$  and  $\phi_n$  be the fixed latitudes of the initial and final points.

Let  $\lambda_1$  and  $\lambda_n$  be the fixed longitudes of the initial and final points.

Let  $V_1, V_2, \dots, V_n$  be small corrections to the logarithms of the measured lengths,  $m_1, m_2, \dots, m_n$  such that  $\log m + V = \log l$ .



Let  $\Delta\phi_1, \Delta\phi_2, \dots, \Delta\phi_n$  and  $\Delta\lambda_1, \Delta\lambda_2, \dots, \Delta\lambda_n$  be the difference in latitude and longitude between the consecutive traverse stations.

Let  $d\phi_1, d\phi_2, \dots, d\phi_n$  and  $d\lambda_1, d\lambda_2, \dots, d\lambda_n$  be the small changes in latitude and longitude caused by the change in the lengths.

Then

$$d\phi_1 + d\phi_2 + \dots + d\phi_n = p \quad (1)$$

where  $p$  is the amount by which the measured latitude fails to equal the difference in latitude between the fixed points.

Let  $y = \log_{10} \Delta\phi$ .

Then

$$dy = M \frac{d\phi}{\Delta\phi},$$

where  $M$  is the modulus of common logarithms.

Since the length is the only factor in the computation of the latitude that changes, the change in the logarithms of the latitude will equal the change in the logarithm of the length, or  $dy = V$ .

Hence

$$d\phi = \frac{V\Delta\phi}{M}$$

Substituting this in equation (1) gives

$$\frac{V_1\Delta\phi_1}{M} + \frac{V_2\Delta\phi_2}{M} + \dots + \frac{V_n\Delta\phi_n}{M} = p$$

or

$$V_1\Delta\phi_1 + V_2\Delta\phi_2 + \dots + V_n\Delta\phi_n = pM$$

By a similar development the longitude equation becomes

$$V_1\Delta\lambda_1 + V_2\Delta\lambda_2 + \dots + V_n\Delta\lambda_n = qM$$

where  $q$  is the amount by which the measured longitude fails to equal the difference in longitude between the fixed points.

Since it is convenient in solving the equations to represent the fifth decimal place of logarithms as units, the roots of the equations should be multiplied by  $10^5$ . The equations to be solved thus become:

$$V_1\Delta\phi_1 + V_2\Delta\phi_2 + \dots + V_n\Delta\phi_n = pM10^5$$

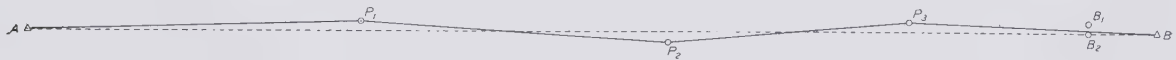
$$V_1\Delta\lambda_1 + V_2\Delta\lambda_2 + \dots + V_n\Delta\lambda_n = qM10^5$$

In order to obtain the most probable value of the  $V$ 's, the equations should be solved subject to the condition that the sum of the squares of the  $V$ 's shall be a minimum.

### ADJUSTMENT OF SPECIAL FORM OF TRAVERSE IN WHICH THE TRAVERSE IS APPROXIMATELY A STRAIGHT LINE

Along the North Line, the Southwest Line, the South Line, and the West Line, the deflection angles of the traverse lines average less than  $1^\circ$ , and the deflection angles balance each other in such a way that the azimuth of any of the courses differs but little from the azimuth of the initial line.

The total error in surveying any traverse line is made up of the error in measuring the distances and the error in measuring the angles. When the traverse is of the kind described above, the total error can be divided into the component parts due to the error in measuring the distances and the error in measuring the angles, as will be seen from the following:



Let  $A$  and  $B$  be two fixed points; and let  $P_1$ ,  $P_2$ , and  $P_3$  be points nearly on the line  $AB$  whose positions are to be determined. The angles at  $A$ ,  $P_1$ ,  $P_2$ ,  $P_3$ , and  $B$  and the distances  $AP_1$ ,  $P_1P_2$ ,  $P_2P_3$ ,  $P_3B$  are measured.

Computing from  $A$ , the position of the final point falls on some point  $B_1$ , which, due to errors in the angles and errors in the distances, does not fall upon the point  $B$ . No reasonable change could be made in the measured lengths that would cause the position of the computed point  $B_1$  to come much closer to the line  $AB$  nor could any change in the measured angles cause  $B_1$  to fall much closer to  $B$ . Hence, changes in the angles must be made that would close the figure and that would cause the computed point  $B_1$  to fall upon the point  $B_2$ , which is on the line passing through  $A$  and  $B$ . Then if all the measured lengths are increased or decreased in the same proportion, the point  $B_2$  will move along the line  $AB$  and a proportional change in all the lengths should be made so that the point  $B_2$  will fall exactly upon the point  $B$ .

For the adjustment of traverse lines of this special form, the following simple method was developed and used, wherever applicable, in adjusting the traverses of the boundary line.



Let  $P_0$  and  $P_n$  be the two fixed points between which the traverse is run.

Let  $P_1, P_2, \dots, P_{n-1}$  be the remaining stations at which angles were observed.

Let  $l_1, l_2, \dots, l_n$  equal the measured lengths of the first, second,  $\dots$   $n$ th courses.

Let  $B_1, B_2, \dots, B_n$  equal the measured azimuths of the first, second,  $\dots$   $n$ th courses, assuming the azimuth of the line  $P_0P_n$  to be zero.

Let  $V_0, V_1, V_2, \dots, V_n$  be corrections to the angles at  $P_0, P_1, \dots, P_n$  such that the azimuth of the line  $P_nP_{n-1}$  plus the angle at  $P_n$  will equal the azimuth of the line  $P_nP_0$ , and the sum of the departures will equal zero.

Then

$$V_0 + V_1 + V_2 + \dots + V_n = p$$

where  $p$  is the difference between the fixed azimuth of the line  $P_nP_0$  and the azimuth as carried through the traverse.



Since the measured lines are nearly parallel to the line  $P_o P_n$  the latitude or the product of the length and the cosine of the azimuth differs but little from the length and for the purpose of this adjustment the lengths may be used in place of the latitudes.

A change of  $V_o$  seconds in the angle at  $P_o$  will produce a change in the departure of  $V_o (l_1 + l_2 + \dots l_n)$  arc  $1''$ , a change of  $V_1$  seconds at  $P_1$  will produce a change in the departure of  $V_1 (l_2 + l_3 \dots l_n)$  arc  $1''$ , etc.

Then the  $V$ 's must satisfy the condition

$V_o (l_1 + l_2 + \dots l_n)$  arc  $1'' + V_1 (l_2 + l_3 \dots l_n)$  arc  $1'' + \dots V_{n-1} (l_n)$  arc  $1'' = q$  where  $q = -$  (the sum of the computed departures or the error in departure), or

$$V_o (l_1 + l_2 \dots l_n) + V_1 (l_2 + l_3 \dots l_n) \dots V_{n-1} (l_n) = \frac{q}{\text{arc } 1''}$$

Hence the two equations that must be satisfied in order that there will be no azimuth error and in order that the sum of the departures will be zero are:

$$V_o + V_1 + V_2 \dots + V_n = p$$

$$V_o (l_1 + l_2 \dots l_n) + V_1 (l_2 + l_3 \dots l_n) + \dots V_{n-1} (l_n) = \frac{q}{\text{arc } 1''}$$

To obtain the most probable value of the  $V$ 's, these equations should be solved subject to the condition that the sum of the squares of the  $V$ 's shall be a minimum.

There remains to be satisfied the condition that the sum of the latitudes of the courses must equal the fixed distance between  $P_o$  and  $P_n$ , and this may be satisfied by multiplying each course of the traverse by the ratio obtained by dividing the fixed distance by the sum of the measured latitudes.

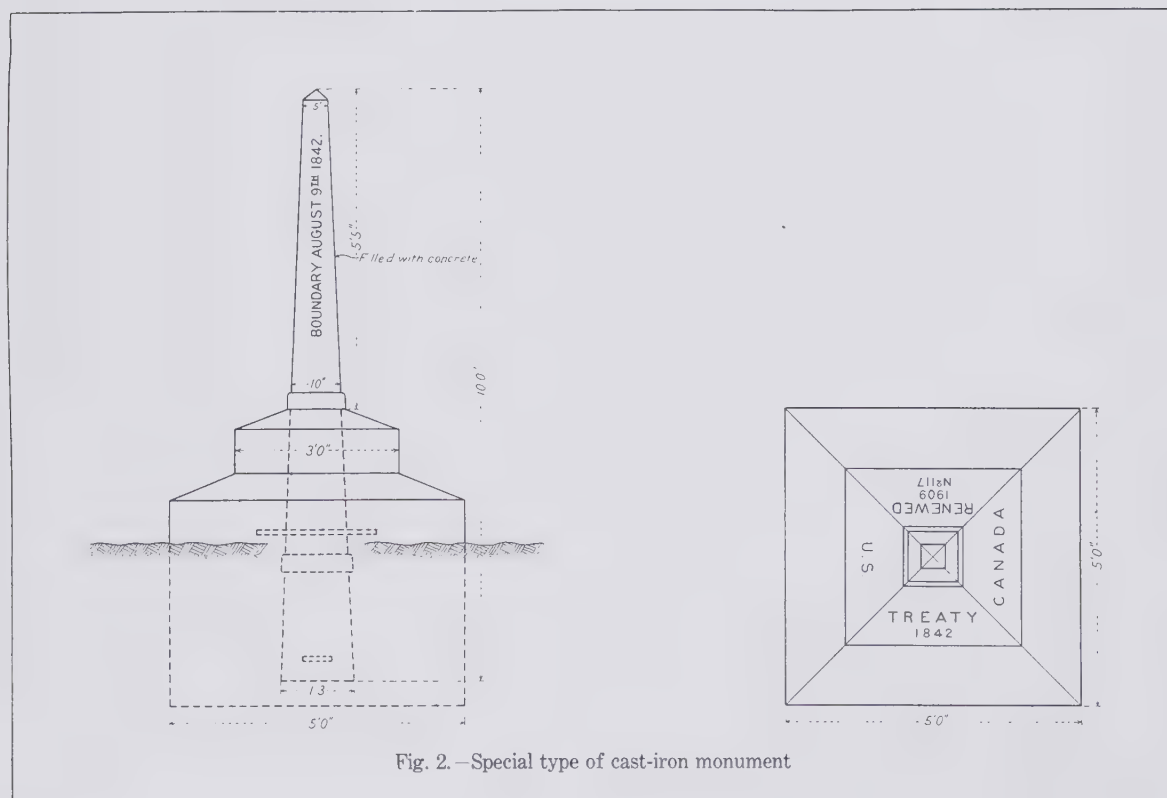
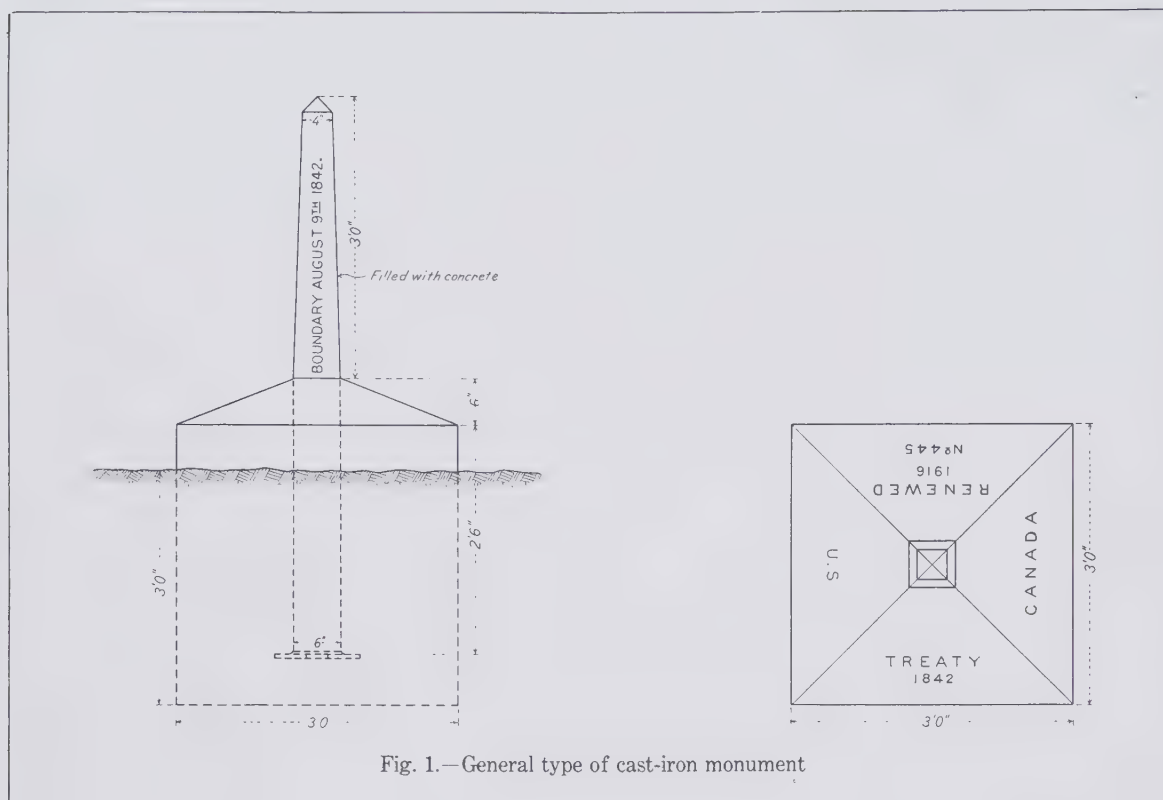
## MONUMENTS AND MONUMENTING

The international boundary from the source of the St. Croix River to the St. Lawrence River is marked by 4,204 monuments set on the land portions of the line and by 548 reference monuments along the banks of the boundary streams. The monuments have been placed so as to make the demarcation of the line as complete as possible. A monument has been set at every important road crossing and at every "line house," and a line mark is shown on each of the international bridges on the St. John River. Moreover, on all the straight-line sections of the boundary the monuments have been set at such intervals that it is possible in most cases to see from one monument to the next. The object has been to make it easy for anyone interested to determine the exact location of the boundary line at any point.

### TYPES OF MONUMENTS

The monuments which mark the land portions of the line include the following six types:

1. General type of cast-iron monument made in 1843-1845 (fig. 1).
2. Special type of cast-iron monument made in 1843-1845 (fig. 2).
3. Granite monument (fig. 3).
4. Special type of concrete monument (fig. 4).
5. Small concrete or granite monument (fig. 5).
6. Bronze disk boundary monument (fig. 8).





The monuments which reference the boundary through the waterways include four different types:

1. General type of cast-iron monument made in 1843–1845 (fig. 1).
2. Small concrete or granite monument (fig. 5).
3. Bronze disk reference monument (fig. 6).
4. Bronze post reference monument (fig. 7).

The general type of cast-iron monument is shown in Figure 1. These are the cast-iron posts which were set in 1843–1845 to mark the line on the land portions of the boundary and the line along some of the small streams, and to show the nationality of the islands of the St. John River. The monuments are 6 feet long and are now set in concrete bases 3 feet square with the top of the cast-iron post rising 3 feet above the surface of the base. All of the cast-iron monuments except those which are used to show the nationality of the islands in the St. John River bear the following inscriptions cast in raised letters on the sides of the posts: On the side facing the United States, "ALBERT SMITH U. S. COMSSR."; on the side facing Canada, "LT. COL. I. B. B. ESTCOURT H. B. M. COMSSR."; and on the other sides "TREATY OF WASHINGTON" and "BOUNDARY AUGst 9th, 1842." On the concrete bases are inscribed in sunken letters on the side facing each country the appropriate words "CANADA" or "U. S."; on the third side, the number of the monument and the words "RENEWED (date)"; and on the fourth side, "TREATY 1842." The inscriptions on the monuments which show the nationality of the islands in the St. John River are the same as the above except that the words "BOUNDARY AUGst 9th, 1842," are replaced by "AUGst 9th, 1842, U. S. ISLAND" or "AUGst 9th, 1842, H. B. M. ISLAND," depending upon the nationality of the island monumented. On one side of the base of these island monuments is stamped in the concrete the name of the country, "U. S." or "CANADA," and the number of the monument, and on the opposite side, "RENEWED 1917."

The special cast-iron monuments of the type shown in Figure 2 were set in 1843–1845 to mark certain boundary points which were considered of more than usual importance. These monuments were cast in three sections, whose combined length is 10 feet, and are now



General type of cast-iron monument, on Daigle's Island, St. John River

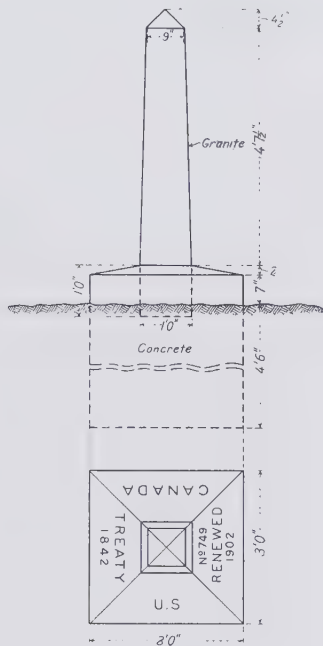


Fig. 3.—Granite monument

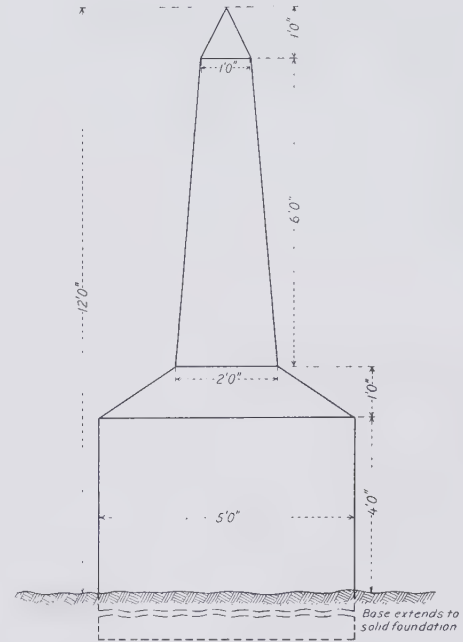


Fig. 4.—Special type of concrete monument

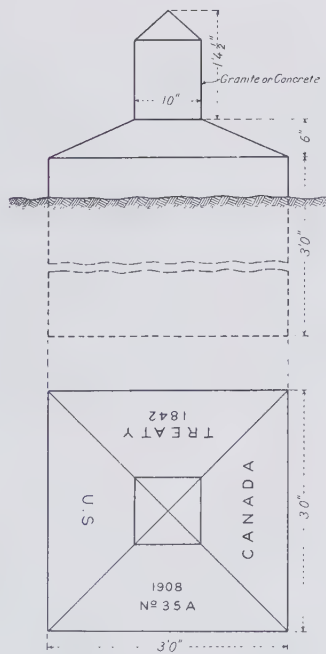


Fig. 5.—Small concrete or granite monument

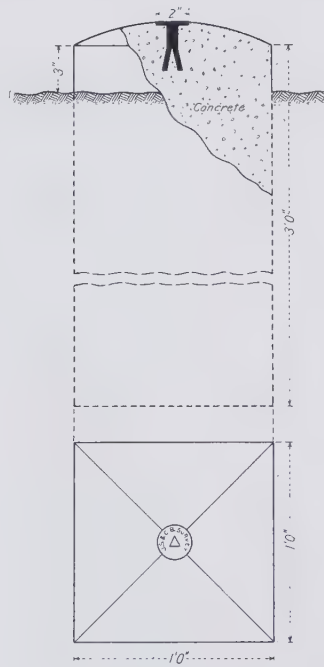


Fig. 6.—Bronze disk reference monument

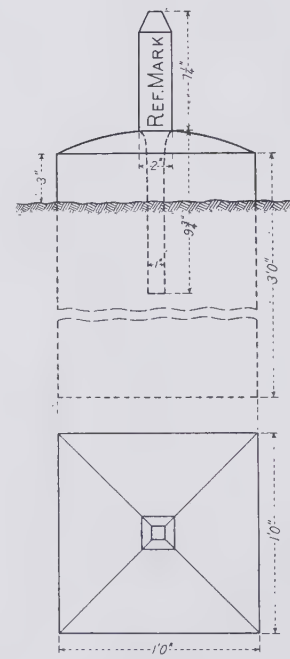


Fig. 7.—Bronze post reference monument



set in concrete so that 5 feet 5 inches of each post extends above a base 5 feet square built on a solid foundation below the frost line. The locations of these special monuments are shown in the following list:<sup>13</sup>

Monu- ment No.	Location
1	Source of St. Croix River.
117	Right bank of St. John River at its intersection with the North Line.
178	Outlet of Lake Pohenagamook.
<sup>1</sup> 276	Boundary point at Northwest Branch of St. John River (near junction of Southwest and South Lines).
304	On left bank of Southwest Branch of St. John River at its first intersection with the South Line.
<sup>1</sup> 309	Reference monument on left bank of Southwest Branch at its intersection with parallel 46° 25' and also with the South Line produced.
318	The Highlands near source of Southwest Branch.
351	The Highlands at the Kennebec Road.
505	Near head of Halls Stream.
518	Right bank of Halls Stream at its intersection with the West Line.
644	East bank of Richelieu River.

<sup>1</sup> Top of cast-iron obelisk has been broken off.

The granite monuments shown in Figure 3 were set in 1902 on the New York-Quebec line to replace the original cast-iron posts. The monuments are described in the reports of the State engineer and surveyor of New York and the chief astronomer of Canada, under whose joint supervision the remonumenting was done. This description is as follows:

"The monuments are 6 feet in length, the lower portion of the stone having an ashlar face, 12 inches square, for 1 foot of its length. From this point for a distance of 4 feet 7½ inches, the stone tapers from 12 inches to 9 inches on each side, with each corner having a beveled face one-half inch wide. The remaining 4½ inches at the top is dressed in the form of a pyramid.

"It was decided that they should be set in concrete bases, 3 feet square, and averaging 4 feet 6



Special type of cast-iron monument, as shown in Figure 2, before being reset

<sup>13</sup> Monument 645 on the west bank of the Richelieu River and monument 775 which marked the line at the east bank of the St. Lawrence River were destroyed by caving banks and ice and could not be recovered and reset.

inches in the ground and 9 inches above the surface. One foot of the granite stone was embedded in the concrete. The upper surface of the concrete was given a slope to turn rain, and on it was imprinted the lettering, as follows:

"On the south side, 'U. S.'"

"On the north side, 'Canada.'"

"On the west side, 'Treaty 1842.'"

"On the east side, the number of the monument, with 'Renewed 1902.'"

"In the case of the new monuments, the word 'renewed' was omitted, and the letter 'A' followed the number."

The large concrete monuments of the special type shown in Figure 4 were built to mark the boundary at Lake Champlain and the Richelieu River. These consist of a base 5 feet square and 5 feet high, surmounted by a 7-foot shaft.

Only 4 monuments of this type were constructed, 3 on the shores of Lake Champlain and 1 at the west bank of the Richelieu River.

The small concrete or granite monuments shown in Figure 5 are used in many places along the boundary to mark the line at intermediate points between original monuments, to replace original monuments that could not be recovered, and to reference the boundary line along streams. These monuments consist of granite or concrete blocks, 10 inches square, projecting 8 to 18 inches above concrete bases of the same type as those of the cast-iron monuments. The inscriptions on the bases of those monuments which mark the intermediate points on the boundary line are the same as on the bases of the cast-iron monuments except that the word "RENEWED" is omitted. On the bases of those which are used as reference monuments there is shown the name of the country in which the monument is set, the number of the monument, and the year it was built. Monuments of this type were used on the North Line, the Southwest and South Lines, the Vermont-Quebec boundary, the Highlands at the Kennebec Road crossing, and as reference monu-



Large concrete monument of type shown in Figure 4, set on Province Point, Lake Champlain, in 1907



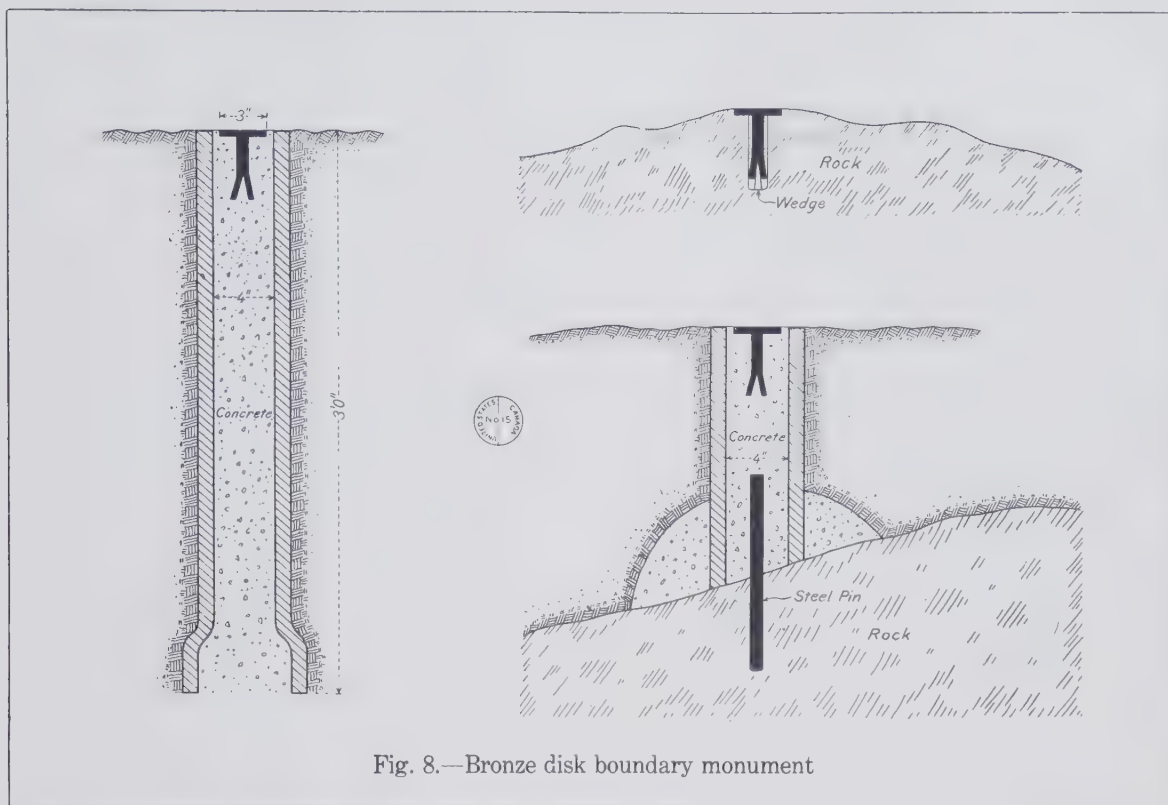


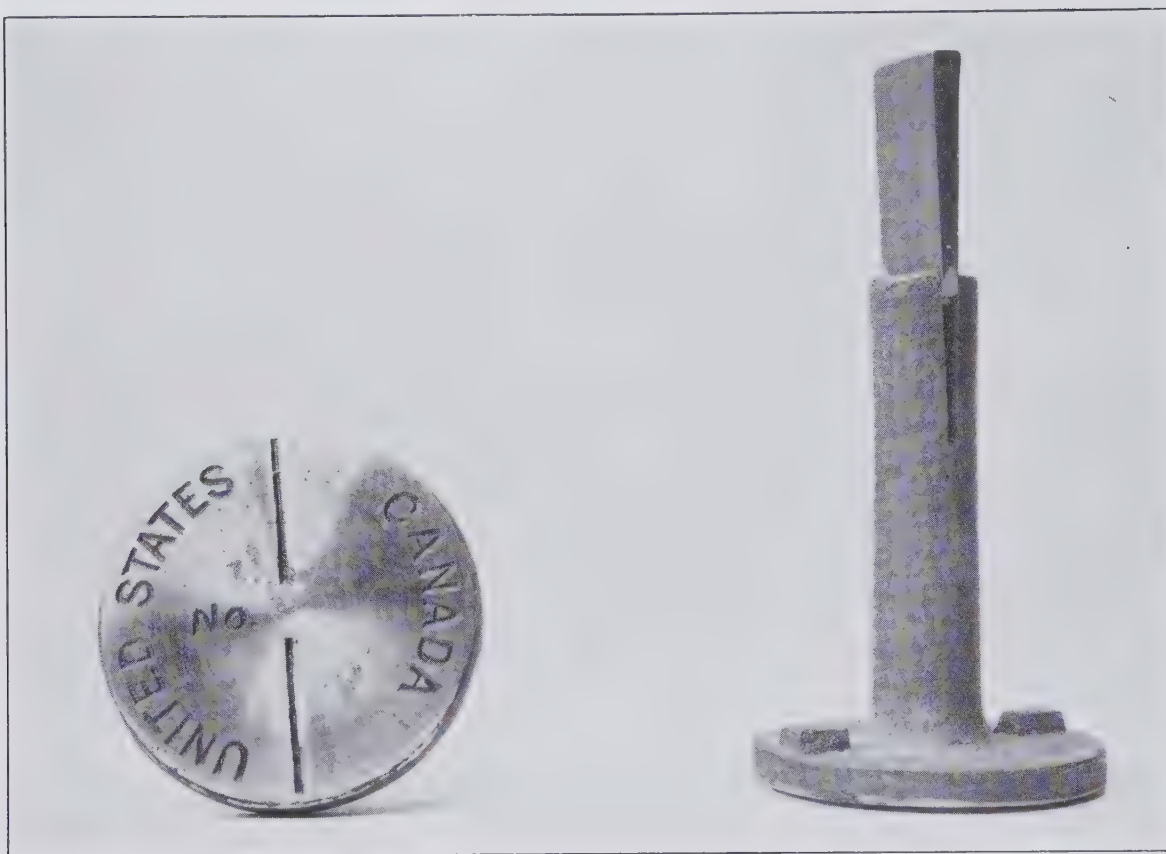
Fig. 8.—Bronze disk boundary monument

ments on the St. John River, the St. Francis River, and the Southwest Branch of the St. John River.

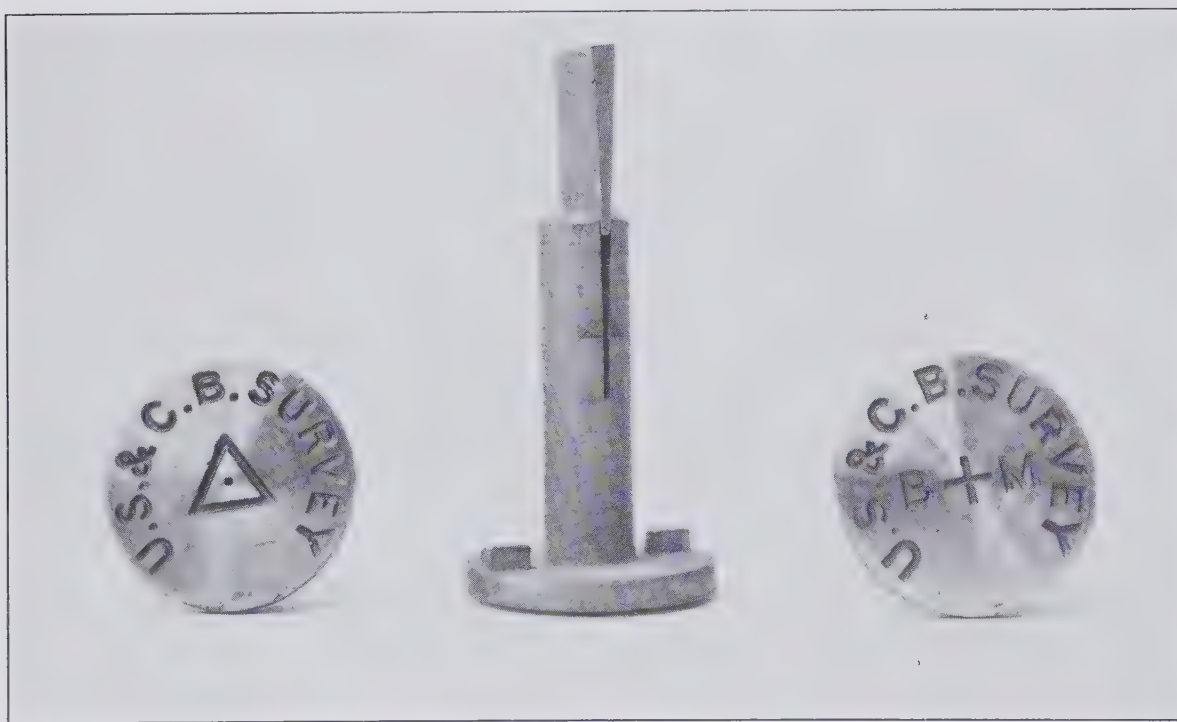
The bronze disk boundary monuments (fig. 8) were set at boundary angle points between the cast-iron monuments on the Highlands. They are 3-inch disks made of bronze which contains 88 per cent copper, 10 per cent tin, and 2 per cent zinc. They are set with wedges in solid rock or in concrete-filled sections of 4-inch drain tile, 24 inches to 36 inches in length, set flange ends down with their upper ends flush with the surface of the ground. The number of the mark is stamped on the disk, and on appropriate sides of a center line are cast the words "CANADA" and "U. S."

Bronze disk reference monuments (fig. 6) are used on the St. John River and on Halls Stream. These consist of 2-inch bronze disks with 3-inch shanks and are set either in concrete bases 12 inches square and 3 feet or more in depth, or in solid rock.

The bronze post reference monuments (fig. 7) are 8 inches high, with a shank 10 inches long. The posts are made of manganese bronze containing 59 per cent copper, 38 per cent zinc, 2 per cent iron, and 1 per cent manganese. The number of the mark is outlined in drill holes about one-fourth inch apart on the smooth side of the post, and the words "REF. MARK," "INT. BDRY.," and either "CANADA" or "U. S." are cast in raised letters on the other three sides. These small posts are set in solid rock or in concrete bases 12 inches square. They are used along the upper part of Halls Stream and at a few places on the St. Francis and St. John Rivers.

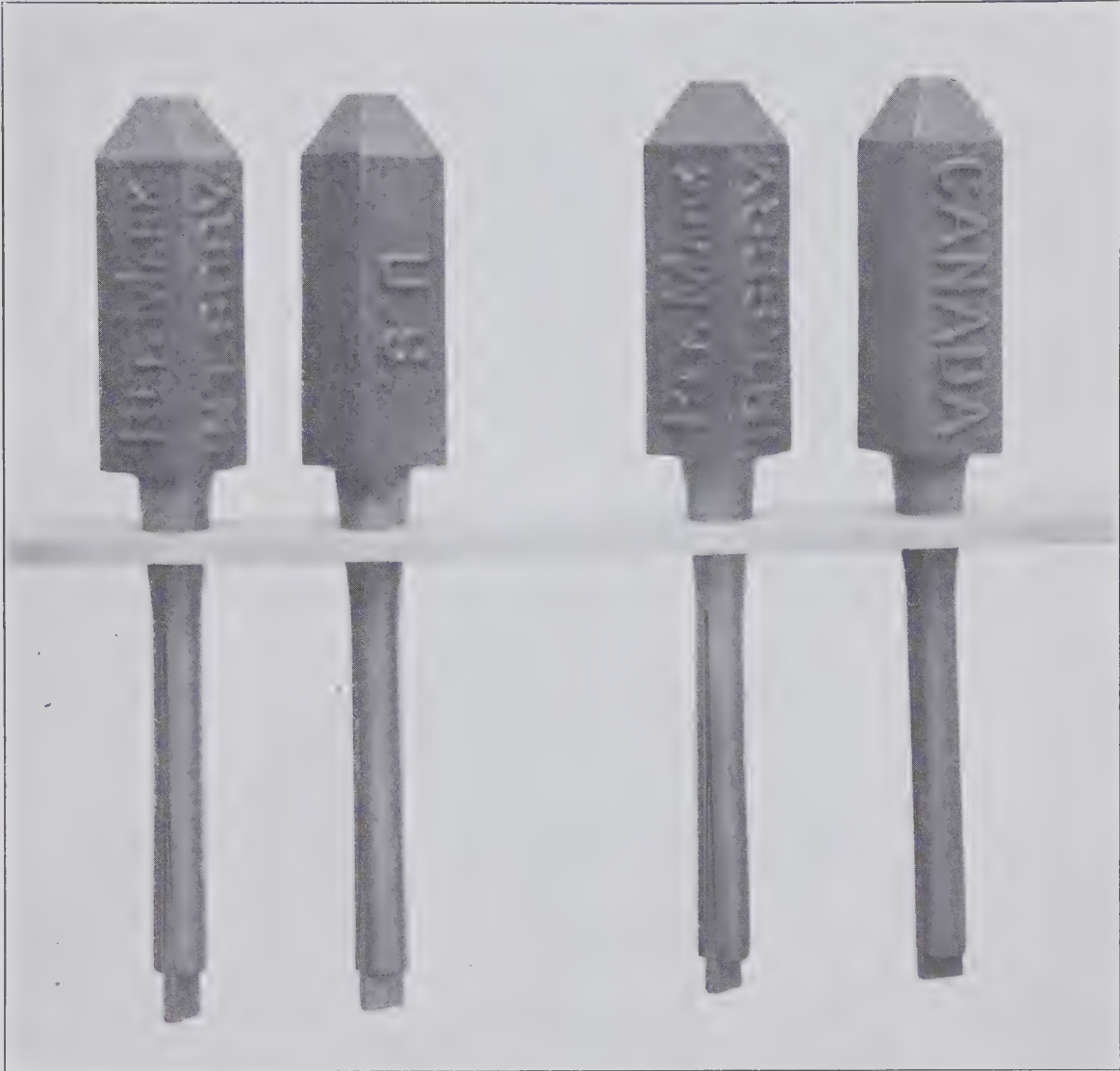


Bronze disks used as intermediate boundary monuments on the Highlands



Bronze disks used as reference monuments, triangulation station marks, and bench marks





Bronze posts used as reference monuments along some of the boundary streams

## TRANSFER OF ORIGINAL MONUMENTS TO MORE DESIRABLE SITES

Most of the cast-iron monuments set in 1843-1845 have been reset, or replaced by new monuments, on their original sites. Some of the old monuments, however, were found in positions which were threatened by stream erosion or by caving



Monument and "line house" near Canaan, Vt.

banks of steep slopes; while others were found at inconspicuous places or on low ground which did not permit of good foundations except at a considerable cost. These were moved to other points on the boundary line, on near-by ridges or on firm ground. A list of these transferred monuments, with the distances between their original and present positions, follows:



## MONUMENTS MOVED ALONG THE NORTH LINE IN 1908

Monument No.	Distance	Direction moved	Monument No.	Distance	Direction moved
	<i>Feet</i>			<i>Feet</i>	
2.....	581	North.	65.....	366	South.
3.....	564	Do.	66.....	840	North.
6.....	1, 018	Do.	67.....	853	South.
7.....	544	Do.	69.....	27	Do.
8.....	1, 281	South.	71.....	672	Do.
12.....	536	North.	72.....	1, 396	North.
14.....	506	Do.	74.....	1, 164	Do.
15.....	344	South.	75.....	732	South.
17.....	1, 250	North.	77.....	646	North.
18.....	78	Do.	79.....	112	Do.
21.....	602	South.	80.....	386	South.
22.....	1	Do.	81.....	462	Do.
24.....	1	North.	85.....	357	Do.
26.....	87	Do.	87.....	1, 334	North.
28.....	36	Do.	88.....	769	South.
31.....	545	South.	89.....	1, 176	Do.
32.....	645	North.	92.....	417	Do.
33.....	969	Do.	93.....	681	Do.
35.....	201	South.	94.....	135	North.
36.....	983	North.	95.....	404	South.
37.....	652	Do.	97.....	252	North.
38.....	271	South.	99.....	436	Do.
40.....	698	North.	100.....	109	Do.
41.....	192	Do.	101.....	437	South.
43.....	62	South.	102.....	125	North.
45.....	362	North.	103.....	44	South.
46.....	223	Do.	104.....	140	Do.
47.....	5	South.	105.....	584	Do.
48.....	10	North.	106.....	629	Do.
49.....	466	South.	108.....	1, 329	North.
51.....	418	Do.	110.....	536	Do.
52.....	681	North.	113.....	864	Do.
54.....	76	Do.	115.....	743	South.
55.....	647	South.	116.....	202	Do.
56.....	43	North.	117.....	4	Do.
57.....	244	South.			
58.....	473	North.			
59.....	222	South.			
61.....	1, 136	North.			
63.....	464	South.			

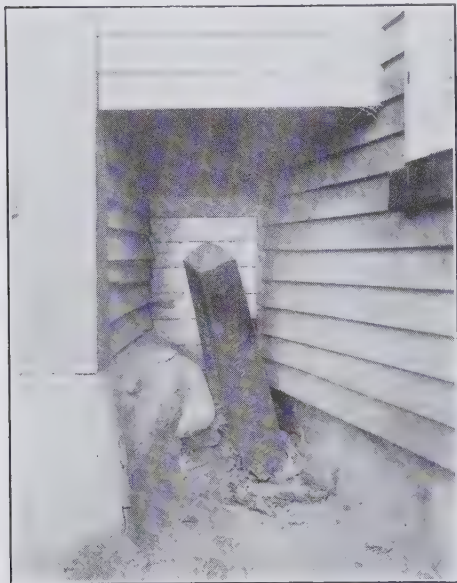
## MONUMENTS MOVED ALONG THE VERMONT-QUEBEC BOUNDARY IN 1906-1907

Monument No.	Distance	Direction moved	Monument No.	Distance	Direction moved
	<i>Feet</i>			<i>Feet</i>	
522.....	31	West.	596.....	6	West.
525.....	41	East.	601.....	1, 145	East.
537.....	5, 684	West.	602.....	1, 740	Do.
544.....	3, 149	East.	603.....	672	West.
553.....	9	West.	608.....	2, 422	Do.
554.....	18	Do.	612.....	2, 130	Do.
557.....	362	East.	623.....	148	Do.
560 <sup>1</sup> .....	15	West.	627.....	1, 340	Do.
563.....	2, 672	Do.	630.....	8	Do.
566.....	618	East.	632.....	320	Do.
567.....	597	Do.	633.....	40	East.
568.....	72	West.	639.....	2, 723	Do.
572.....	38	Do.	642.....	6	West.
583.....	234	East.			
587.....	1, 763	West.			

<sup>1</sup> Change in position made by Graham and Ord in 1849.

## MONUMENTS MOVED ALONG THE NEW YORK-QUEBEC BOUNDARY IN 1902

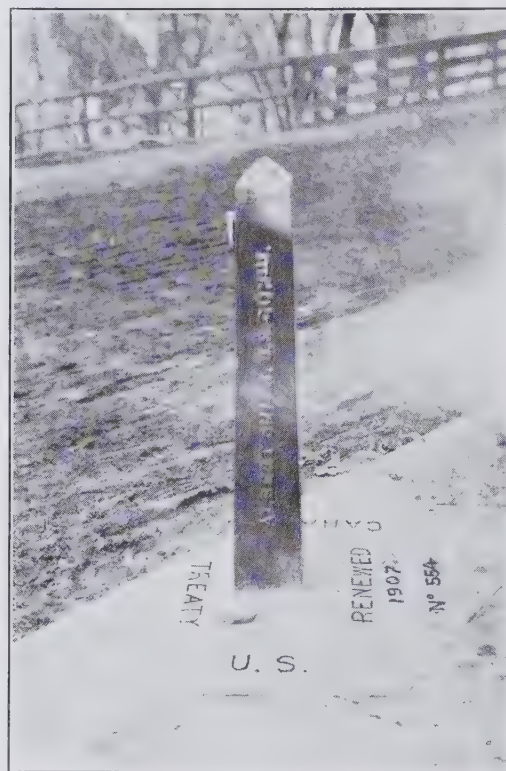
The changes made in the positions of original monuments on the New York-Quebec boundary, when they were replaced by new ones in 1902, are shown by the following quotation from the report of the State engineer and surveyor of New York and the report of the chief astronomer and boundary commissioner of Canada, under whom the monumenting was done.<sup>14</sup>



One of the monuments that had to be moved; No. 554, at Derby Line, Vermont

“It was a matter of current report that certain monuments, namely, Nos. 659, 719, 721, and 743, had been moved from their original positions by unauthorized persons. Our survey showed, however, that the first of these was only  $4\frac{1}{4}$  inches from the true line, and No. 719 was exactly on line. Nos. 721 and 743 proved to be 3.39 feet and 4.41 feet, respectively, off line. No. 743 was also found to have been moved easterly a distance of 53.81 feet, and, as will be seen from the notes we have given of our examination of the monuments, was completely loose in the hole, and turned partly around. The discrepancies in the positions of these two monuments were much greater than any others found, and far beyond the range of accidental error of line running or monument setting in the original survey. Our survey shows the probable error of the placing of an original monument to be not more than 2 or 3 inches. This was considered by us to be corroborative of the rumored displacement, and we set the new monuments on the true line: No. 721, 3.39 feet, and No. 743, 4.41 feet, south of where we found the old posts. No. 743 was also moved westerly 53.81 feet.

“Monument No. 734, previously referred to, was not rebuilt. No. 754, which originally stood in the center of the main street of Dundee, was erected 11.48 feet west of the bottom of the old monument, which was left in place. No. 770, formerly on the east bank of St. Regis River, was placed about 10 feet east of the highway, which runs nearly parallel to the river, a short distance back from the east bank.



Monument 554, after it had been moved and reset

<sup>14</sup> See footnote, p. 99.



"Monument 774, which formerly stood on the bank of the St. Lawrence River, has been carried away by erosion. The new monument was erected about 100 feet east of the present bank.

"In those cases where, as previously explained, two monuments had been set on line, to indicate an astronomical station, we did not consider it necessary to place more than one new granite monument.

"Monument No. 645, in the Richelieu River, was rebuilt in October at the close of our season's work. We measured easterly from No. 646, the distance given in the original notes, and found the stone foundation referred to in the report of the survey of 1845.

"Owing to the fact that water covered the site to a depth of 2 feet, we constructed a cofferdam 6 feet square. A hole 3 feet square was excavated 9 feet below the surface of the water before we obtained a solid foundation."

#### CONSTRUCTION OF MONUMENTS

In resetting the original cast-iron monuments in concrete bases, the iron post was first straightened up and its center referenced by two pairs of hubs or by a plumb bob suspended from a high frame erected over the monument site. The monument was then taken out and the cedar post, which had been placed in the hollow monument when originally set, was removed and the iron post filled with concrete. The excavation for the base was made 3 feet square and carried to a depth of at least 3 feet to firm ground or to rock ledge. If a solid foundation could not be found at reasonable depth, wooden piles were driven into the bottom of the excavation.

The construction of the base was begun by covering the bottom of the pit with a thick layer of wet concrete, consisting of 1 part Portland cement, 2 parts sand, and 5 parts gravel or broken stone, into which were placed clean stones 6 to 10 inches in diameter. Another layer of concrete was puddled into place and more stones added until the excavation was filled to the proper level. The iron post, filled with concrete which had been allowed to set, was then put in place and securely braced and the concreting continued around the monument until the excavation was nearly filled. A wooden form for the upper part of the base was then built around the top of the hole and filled with a somewhat drier and richer mixture in order that the surface of the base could be made to stand at a slope of about 1 vertical to  $2\frac{1}{2}$  horizontal. The surface was carefully troweled and metal plates bearing the proper inscriptions cast in beveled, raised letters



Old cast-iron monument in position to be filled with concrete

and numbers were pressed against the surface of the base on the four sides of the monument. When the concrete had become firm enough to retain the impressions, the plates were removed and the base was covered with wet cement sacks to prevent the formation of surface cracks while the cement was setting.

The methods employed in setting the granite monuments of the New York-Quebec boundary, which was done under the direction of the State engineer and surveyor of New York and the chief astronomer and boundary commissioner of Canada, are shown by the following quotation from their report:

"The new monuments were located and constructed as follows: Where there was no doubt as to the old monument being in its true position, it was first referenced by intersection hubs, east, west, north, and south. These hubs projected 12 inches, and were so placed that cords stretched between nails on their tops passed exactly 6 inches east and north of the center of the old monument. The old monument was then removed, a hole 3 feet square (properly placed) was excavated to a depth of about 4 feet 6 inches. Where soft, marshy ground was encountered, the hole was excavated to a sufficient depth to secure a solid foundation; where ledge rock occurred, all loose material was removed and the site washed and roughened in order to secure a proper bond. Concrete mixture, 1 part Portland cement, 2 parts clean, sharp sand, and 5



Special type of cast-iron monument, No. 505, reconstructed at head of Halls Stream



Mixing concrete; resetting monument on the Highlands boundary

parts broken stone, properly rammed, was used to fill the excavation to within 3 inches of the surface of the ground. The cords were placed in position, and the monument adjusted thereto, and kept in place by guys attached to an iron collar which fitted over the pyramidal top. A form 3 feet square inside and 12 inches high was then carefully placed at right angles to the line and the concrete carried up to its top.



"This portion of the base was finished with a mixture of 1 part cement and 1 part sand, the top having an outward slope of about 1 in 10. While 'setting' was in progress, brass plates with inscriptions of beveled, projecting letters were placed in position on top and kept there until a perfect impression was obtained. Twenty-four hours after, the form was removed and the exposed surfaces given a brush coat of Portland cement grout."



Transporting monumenting materials, Highlands boundary, 1915

The materials for the construction work on the several parts of the boundary were transported to the monument sites by teams and wagons, pack horses, row-boats, or on the backs of the monumenting crew, depending upon local conditions. For convenience in handling and measuring, the sand and gravel were usually brought to the sites in cement sacks. The water was transported in galvanized tanks made especially for this purpose. The mixing of the concrete was done by



Monument construction, Vermont-Quebec line

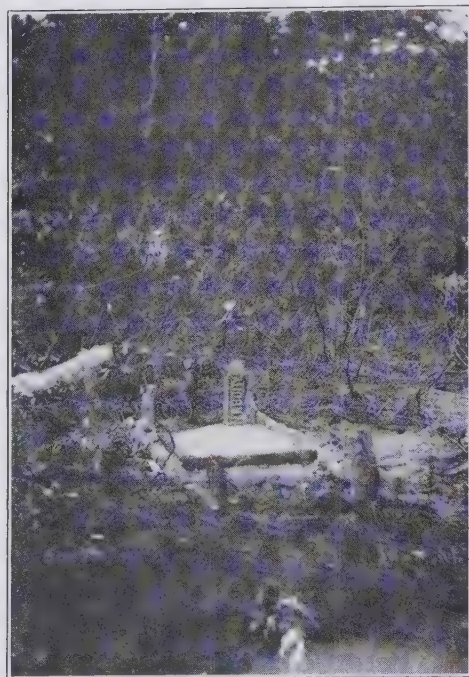


hand, using a mixing platform or a mortar box at the easily accessible sites and a sheet of heavy canvas at the places which could not be reached with wagons.

#### SYSTEM OF NUMBERING THE MONUMENTS

The boundary line from the source of the St. Croix River to the St. Lawrence River is now marked and referenced by 4,752 monuments. Each monument bears the number by which it is designated and these numbers, with the exception of those given to the small intermediate monuments interpolated between the original cast-iron monuments on the Highlands, are shown on the boundary maps.

The system of numbering the monuments begins with monument 1, at the source of the St. Croix River, and ends with monument 774, at the St. Lawrence River. This system was retained so that the original cast-iron monuments set in 1843-1845, when recovered and reset or replaced by new monuments, would bear the numbers by which they were designated in the United States notes of the old survey.



Bronze post reference monument on Halls Stream



Numbering a bronze post reference monument

However, as there are now about six times as many monuments as were set in 1843-1845, it has been necessary to supplement the original numbering with intermediate systems. On the land portion of the boundary, each new monument interpolated between the original cast-iron monuments has been given the number of the preceding original monument, together with a distinguishing letter or number, as, for example, 73-A, 73-B, 73-C, on the straight-line sections of the boundary, and 422-1, 422-2, 422-3 on the Highlands. Along most of the boundary streams, the reference monuments are in an independent series of numbers; as, for example, on the St. John and St. Francis Rivers, beginning at the intersection of the St. John River with the North Line, the reference monuments on the Canadian side start with No. 1 and end with No. 176 at Lake Pohenagamook; similarly, on the United States side they start with No. 1 and end with No. 167,



these monuments being designated on the maps as C-1, C-2, and S-1, S-2, etc. On the islands of St. John River all of the old cast-iron reference monuments set in 1844 which had not been destroyed or lost have been reset and given their original numbers. New reference monuments set on the islands have been given the number of the next preceding original monument together with a distinguishing letter, as, for example, 159-A, 159-B. On the Southwest Branch of the St. John River the four old cast-iron monuments of 1844 at the two forks of the stream have been reset and given their original numbers; on the lower part of the stream the new monuments have been given the numbers of the triangulation stations at which they were set, but since monuments were not set at all triangulation stations, these numbers are not consecutive; on the upper part of the river, between the end of the triangulation and Little St. John Lake, the monuments are numbered consecutively on each side of the stream. Along Halls Stream all of the old cast-iron monuments of 1845 which could be recovered were reset and these retain their original numbers. The bronze post and bronze disk reference monuments set along the stream between the old monuments are numbered consecutively from each preceding cast-iron monument, as, for example, 511-1, 511-2, etc.

### THE BOUNDARY VISTA

An important adjunct to the monuments, in the demarcation of the line through the wooded areas, is the boundary vista. This was recognized by the commissioners of the survey of 1843-1845, who cleared a strip along all the land portions of the line. This vista has been reopened and cleared to such width that there is now an open sky line at least 20 feet wide, 10 feet on each side of the boundary. The aggregate length of this clearing is approximately 389 miles.

The vista cutting was done by a crew of axmen organized for that purpose. It was generally one of the first operations in connection with the survey and was kept well in advance of the other work. The felled trees were trimmed of branches and in many places the logs were removed to the sides of the vista and the clearing used for a roadway over which materials and supplies for the survey were transported.

Besides the clearing along the boundary, considerable line cutting had to be done for other purposes. Along the Southwest Branch of the St. John River and on the eastern section of the Highlands, lines



Boundary vista looking northeast from point near East Lake, Southwest Line, 1912

had to be opened for the precise traverse measurements, and on other parts of the line, particularly on the western portion of the Highlands, heavy cutting was frequently necessary for triangulation. Considerable cutting of a lighter character was required by the topographers in running stadia lines; and another item in the work of the ax crews was the opening of lines for roads and pack trails.

On most parts of the boundary, brush and second-growth timber appear very rapidly, and it will be necessary from time to time to reopen the vista if the demarcation of the line is to be maintained in its present state of effectiveness. An inspection made of some of the boundary vistas in 1922 showed varying rates of growth of trees and brush. In the wet bogs of the Southwest and South Lines only stunted brush 3 to 4 feet high had developed since the line was cleared in 1912 and 1913, but on the ridges dense thickets of maple, birch, and poplar, 15 to 20 feet high, had grown up. Unless the line is periodically cleared, the vista in these latter places will soon be entirely obliterated and the monuments difficult to find.



Monument 543; tree grown since 1845

## TOPOGRAPHY

The region traversed by the part of the international boundary described in this report is mostly wooded, and varies in relief from the flat spruce bogs along the South Line to the rugged highlands between the Province of Quebec and the States of Maine and New Hampshire, where peaks of the boundary ridge have an average elevation of approximately 1,700 feet above the neighboring valleys. In this last-named region, Gosford Mountain rises to an elevation of 3,887 feet above sea level and is, with the exception of the Sweetgrass Hills in Montana, the highest peak in the belt of boundary topography east of the Rocky Mountains. Throughout most of its course, however, the boundary from the source of the St. Croix to the St. Lawrence River traverses low, wooded hills, with few bold or rugged features, or follows natural watercourses.



As there were no maps of the country which satisfied the requirements of Article III of the treaty of 1908, which stipulates that "the course of the entire boundary \* \* \* shall be marked by said commissioners upon accurate modern charts prepared or adopted by them for that purpose," the execution of an accurate topographic survey to provide such maps became part of the duties of the commissioners. The area surveyed by the field force of the commission for this purpose has a minimum width of one-half mile on each side of the boundary, though in several places, particularly along the Highlands, a much wider strip was covered.

All of the topography was mapped in the field, mostly with plane table and stadia, using a 20-foot contour interval, on field scales of 1:5,000, 1:10,000, 1:15,840, and 1:20,000, the size of the scales depending upon the detail necessary properly to show the relation of the boundary line and monuments to the natural topographic features. The field mapping was always done on a larger scale than that upon which the finished maps were to be published.

• The horizontal control for the topographic survey was furnished by the boundary triangulation and the various grades of traverse, which determined the geographic positions of the boundary monuments and reference monuments. The vertical control was obtained from the lines of spirit levels which were run along or near the boundary.

#### TOPOGRAPHIC METHODS

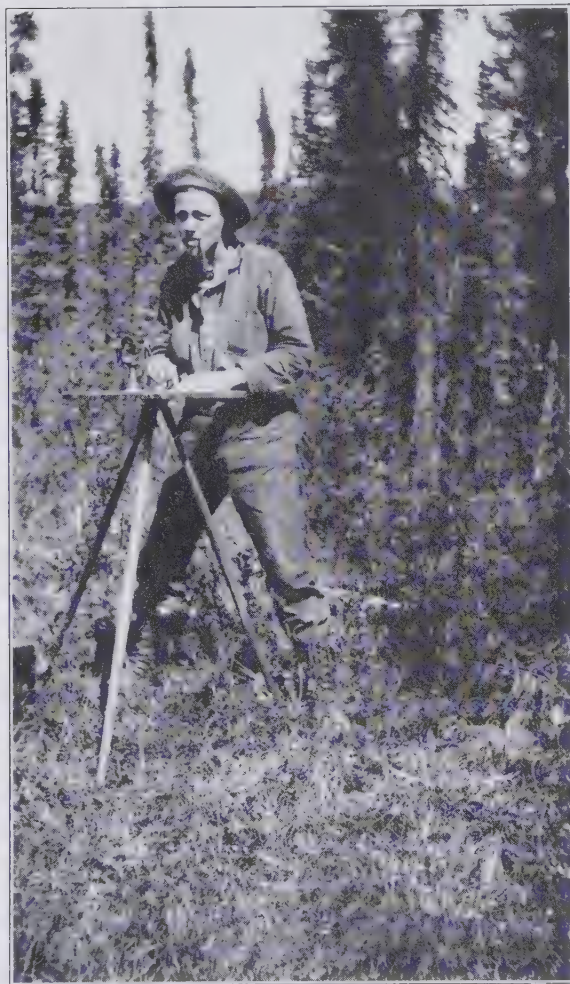
Two different methods were used for mapping the topography on different parts of the line. The first and general method was with plane table and stadia, supplemented in the more densely wooded country by plane table and string tape traverses and aneroid barometers. The second method (used by the Canadian parties) was by a series of hand-level traverses and notebook sketches, which were immediately transferred to field sheets kept in camp.



Monument 480, showing growth of trees since original vista was opened in 1844



For much of the plane-table work a telescopic alidade equipped either with the Beaman or with the ordinary vertical arc was used, together with a standard United States Geological Survey, 18 by 24 inch or 15 by 15 inch, plane table mounted on a Johnson head tripod. Along the North Line, the St. John River, and on the New York-Quebec line, where the country is more open, and also on the St. Francis River, the larger 24 by 30 inch plane table of the United States Coast and Geodetic Survey type was used. With this latter instrument the mapping was done on 30 by 52 inch sheets of muslin-backed cold-pressed antiquarian paper; and with the



Taking topography with the plane table



Vista-cutting gang, United States party, Highlands boundary, 1916

smaller plane tables the field work was done on sheets of white celluloid or double-mounted Paragon paper of the same size as the plane-table boards.

With either of the plane-table outfits the first step was the preparation of the field sheet by plotting the positions of the triangulation or traverse points and the monuments. Closed stadia traverses were then run between these control points, and the topographic features were located by means of numerous stadia readings taken from the traverse stations, using for this purpose one to three rodmen, depending upon the character of the country being mapped. The topographer, as soon as he read the distance and vertical angle to a point, plotted it on his sheet and computed its elevation. After he had thus determined as many points as were needed, and while in the field with the topographic features



before him, he drew the contour lines on his plane-table sheet. He also located and drew on the sheet the roads, buildings, streams, and other features. The stadia was supplemented where convenient by intersection work, particularly in sketching the wooded hills along the North Line, the St. Francis River, and the Vermont-Quebec line.

In the more densely wooded areas the above stadia methods were supplemented by the use of open-sight alidades, paraffined linen tapes, and aneroid barometers, which were used after the method developed by the United States Geological Survey for filling in the topography of small, wooded areas around which stadia traverses had been run. The procedure with this method of mapping was as follows:

A plane-table-and-stadia traverse was first run along the boundary and the contours crossing the line were sketched. This very narrow belt of topography was then traced on thin tracing paper and transferred to the plane-table sheets of the topographers who were working on either side of the line. These topographers then blocked out small areas of approximately one-half square mile and ran stadia traverses around them through narrow lines cut through the timber and brush. Each of these traverses was usually started at a control point on the boundary and was run at right angles to the boundary for a distance of one-half mile, then parallel to the line for approximately 1 mile, and thence back to close on a boundary control point. Along this stadia traverse there were left marked stations of known elevation.

After being adjusted, this traverse and the traverse along the boundary formed the skeleton control which was to be filled in by the paraffined tape traverses. In this filling-in process any marked station was taken as a starting point, and the man at the head end of the tape, aided by a prismatic or pocket compass, started dragging the tape across the unmapped area toward another marked point. When the 500-foot tape was extended, the plane-table man



United States topographic camp at Arnold Bog, 1916



Low pass on Highlands boundary at head of Arnold Bog; elevation, 2,481 feet

pointed the open-sight alidade in the general direction taken by the tape man, and a more exact pointing was made by observing the direction from which certain vocal signals of the tape man seemed to come. The traverse man then went forward along the tape, took aneroid readings at abrupt changes of elevation, explored the country on either side of the traverse, and sketched the contours. At the forward end of the tape the plane table was then set up and oriented, the aneroid was read, and the operation repeated. This procedure was continued until a closure was made on the marked point of the stadia traverse, toward which the line was being run.

This method proved most satisfactory when the string-tape traverse lines were not more than 1 mile in length and the differences in elevations were at least several contour intervals. Its immense advantage lay in eliminating the slow and costly cutting of lines through the brush and timber. It was used on the Highlands from the Canadian Pacific Railway crossing to the head of Halls Stream, on the South Line, the southern end of the Southwest Line, and along the northern end of Halls Stream.

The hand-level method used by the Canadian parties for taking the topography in heavily wooded areas was as follows: At intervals of 1,000 feet or less along the boundary, and usually at right angles to it, a narrow line was cut through the small forest growth, avoiding the large trees. The bearings of the courses of this line were determined with a prismatic compass. At the same time, with a Locke level mounted on a Jacob's staff and equipped with stadia wires, levels were run over the line and distances measured from station to station by stadia readings on the level rod. In the book in which the notes of this work were recorded, sketches were made of the contours and the other features for some distance on each side of the stadia line. The notes and sketches were then plotted and adjusted on a field sheet, and on this sheet were sketched all the contours of the areas mapped before leaving that locality. Ample opportunity was thus afforded for correcting errors and filling in areas which had not been thoroughly covered by the several level traverse parties.

The parts of the boundary mapped by this method include the Southwest Line from Lake Pohenagamook to monument 265, the Southwest Branch of the St. John River, and the Highlands eastward from the crossing of the Canadian Pacific Railway.

### LEVELING

The vertical control for the topographic maps consists of lines of spirit levels run along the boundary just ahead of the mapping, most of which was done before precise-level bench marks of the two countries had been established near the boundary. The most accurately determined elevations available to the parties working along the boundary during the first few years of the survey were those of railroad bench marks, and this datum was used with the realization that the corrections to reduce the elevations to mean sea-level could be determined later. In later years, when these lines of levels were connected to precise-level bench marks of the United States Coast and Geodetic Survey and the Geodetic Survey of Canada, it was found that these corrections never exceeded 10 feet. The amount



of each correction is shown in a note on the published map to which it is applicable. When the western part of the Highlands and the New York-Quebec boundary were mapped, precise-level bench marks were available, and the elevations along the line were determined directly on mean sea-level datum.

The elevations along the North Line were determined by a double-rodged line of levels run in one direction only and based on the Canadian Pacific Railway's elevation of rail at the boundary crossing near monument 14-A. During the course of the survey this line was checked by vertical angles and stadia distances measured with a small theodolite. Several years after the survey of the North Line was completed precise-level bench marks were established in that vicinity by the United States Coast and Geodetic Survey and the Geodetic Survey of Canada. Connections were made between the levels along the North Line and these bench marks at the following points: A line was run from a Coast and Geodetic Survey precise bench mark at Danforth, Me., to monument 1, and ties were made with precise bench marks of the Geodetic Survey of Canada at monument 14-A at the boundary crossing of the Houlton-Debec branch and at monument 82 at the boundary crossing of the Presque Isle-Andover branch of the Canadian Pacific Railway. These three connections provided the corrections necessary to reduce the North Line elevations to mean sea-level datum.

Elevations for the control of the topography along the St. John and St. Francis Rivers were obtained by running levels from numerous bench marks of the Canadian National Railway, which was then under construction. A continuous line of levels was run along the Canadian side of the St. John River, following one of the railroads, and, subsequently, when precise-level bench marks were available, this line was connected at six points to the Canadian Geodetic Survey levels, and the elevations determined along the St. Francis River were connected to a precise-level bench mark at Lake Pohenagamook.

From the Canadian National Railway bench mark at Lake Pohenagamook, levels were run independently in forward and backward directions along the Southwest and South Lines to the Southwest Branch of the St. John River, and elevations were determined at 100-foot intervals at the stakes set for tape measurement along the boundary. At St. Pamphile a closure was made with a line from a Canadian National Railway bench mark at Lafontaine, Quebec; and at monument 309 a connection was made with a circuit which had been run from the Quebec Central Railway bench mark at Ste. Sabine, thence along the Southwest Branch of the St. John, and back to the railroad at Ste. Rose. Levels on the Quebec Central Railway datum were continued along the Southwest Branch of the St. John River and thence along the Highlands to monument 392, at which point a junction was made with the levels carried along the Highlands boundary from the Canadian Geodetic Survey precise bench mark on the Canadian Pacific Railway at Boundary Siding, Quebec. In 1922, a line was run from a United States Coast and Geodetic Survey precise-level bench mark at Jackman, Me., to monuments 351 and 352; and from these two connections with precise levels, and from the connection made at Lake Pohenagamook with the Canadian Geodetic Survey levels, corrections were determined to reduce the intervening elevations to mean sea-level.

For the vertical control of the survey of the portion of the boundary along the Highlands from the crossing of the Canadian Pacific Railway to the head of Halls Stream, level lines were run in a series of closed circuits westward from a Canadian precise-level bench mark on the Canadian Pacific Railway at Boundary Siding, and eastward along the Highlands from a similar precise-level bench mark at St. Malo, Quebec. A junction was made between these lines at monument 475. At a point on the boundary near Woburn, Quebec, the levels were also connected with a line running north to Lake Megantic, the elevation of which was determined from a precise-level bench mark at Megantic, Quebec. A permanent bench mark, consisting of a bronze disk set in the concrete foundation of the monument, was established at each of the 106 monuments from the Canadian Pacific Railway crossing to the head of Halls Stream. The bench-mark elevations and the topographic maps of this portion of the line are on mean sea-level datum.

Levels for the vertical control of the topographic maps along Halls Stream were run from a bench mark of the Maine Central Railroad at Beecher Falls, Vt., and later, after precise leveling had been done in this vicinity, were tied to a precise bench mark at St. Malo, Quebec, and to a similar bench mark near the mouth of the stream.

The Vermont-Quebec boundary elevations depend upon a line of levels run along the boundary in one direction only, together with a double line of elevations determined from vertical angles and stadia distances measured with a theodolite. When this work was done in 1906 and 1907 the most reliable elevations available were those of the several railroads crossing the boundary. Accordingly these were used, and in 1919, when precise bench marks were available, the Vermont-Quebec boundary levels were connected with Canadian Geodetic Survey bench marks at five points—Beecher Falls, Vt., Norton Mills, Vt. (Stanhope, Quebec), Rock Island, Quebec (Derby Line, Vt.), Richford, Vt. (Abercorn, Quebec), and St. Armand, Quebec. The corrections to the boundary levels at these points averaged less than 2 feet. The levels were adjusted to mean sea-level datum, and the elevation of the ground at each monument is shown on this datum on the boundary maps.

The levels along the New York-Quebec boundary were started at a United States Coast and Geodetic Survey precise-level bench mark at Rouses Point, N. Y.,



Bench mark, Canadian Department of Public Works, established on boundary line at Rouses Point, 1844



and were run westward along the line in small circuits to a closure on a United States Geological Survey bench mark at the Chateaugay River. From that point to the St. Lawrence River a line was run in one direction only, touching on three United States Geological Survey bench marks and closing on a bench mark established at Hogansburg, N. Y., by the Board of Engineers on Deep Waterways. Permanent bench marks, consisting of bronze disks set in the bases of monuments, were established at 41 of the New York-Quebec boundary monuments.

The levels along the boundary from the source of the St. Croix River to the St. Lawrence may be divided roughly into three classes, according to their relative accuracy. Those along the Vermont-Quebec line and along the North Line were run only for the purpose of furnishing vertical control for the topographic maps of these regions before any precise-level bench marks had been established near the work and before any limits of accuracy for leveling and topography had been adopted by the boundary surveyors. Levels of a higher degree of accuracy were run along the St. John and St. Francis Rivers, the Southwest and South Lines, the Southwest Branch of the St. John River, the eastern part of the Highlands, and along Halls Stream. These levels were carefully run, but the accuracy attempted was only of that degree necessary to determine the inclination of the tapes on the precise traverse measurements and to afford a more accurate control for the topography than that first used, without attempting to establish a line of permanent bench marks based on mean sea-level datum. The most accurate leveling was done along the New York-Quebec boundary and along the Highlands from the Canadian Pacific Railway to the head of Halls Stream. These levels are based on precise-level bench marks. They were carefully run in closed circuits, permanent bench marks were established along the line, and the results compare favorably with the primary grade of leveling done by the United States Geological Survey. The requirement for closure of circuits on these lines was that the discrepancy in closure in feet should not exceed  $0.04\sqrt{M}$ , in which  $M$  is the length of the circuit in miles.



Special type of leveling-rod target used on the Highlands boundary

To obtain this accuracy, it was necessary in the rough country along the Highlands to keep the lengths of the fore sights and back sights carefully balanced. As it was difficult to pace these distances with any degree of accuracy in the vista filled with fallen timber along the boundary, the lengths of the back sights and fore sights were read by stadia, using for this purpose a special form of stadia target designed by the engineer to the United States section of the commission. This consisted simply of a small scale attached to the regular target, on which the stadia distance was read by the upper stadia wire after the target was set at the correct elevation. To prevent the possible error of setting the target on one of the stadia wires instead of on the center wire, the lower stadia wire was removed from the instrument, thereby making it impossible to read the stadia distance if the target was improperly set. The target is shown in the illustration on page 131.



A supply storehouse in the Highlands, 1916



Moving camp with boats and scow on Glazier Lake, 1910



## FIELD TRANSPORTATION

The transportation of equipment, provisions, forage, and monumenting materials from the railway stations to camps of the surveying parties along the boundary and the movement of camp outfits from point to point was a problem with which the parties were always confronted. In some of the settled localities where there were good roads, it required little consideration; but in the rough, densely wooded areas it was perhaps the most difficult job of all in conducting the survey operations.

The work along the line northward from the source of the St. Croix River to the St. John River and thence along that river to the St. Francis River was through a settled country, a region of farms and small villages, where good roads were numerous, and the outfits and materials incidental to the survey were easily handled with teams and wagons.

Along the St. Francis River the parties used a road as far north as Glazier Lake, an expansion of that river 5 miles above its mouth. From the foot of Glazier Lake north to the head of Beau Lake there were no roads and dependence was placed entirely upon water transportation, the parties using a motor boat, a scow, and canoes on the river and lakes. From the head of Beau Lake to Lake Pohenagamook the stream is paralleled by a highway and throughout part of this distance by the Canadian National Railway, and here water transportation was supplemented by the use of the railway and the highway.

From Lake Pohenagamook to the source of the Southwest Branch of the St. John River the boundary traverses a forest-covered area of hills interspersed with streams and swamps. Where possible in this region wagons were used on the few tote roads and winter logging roads leading from the settlements to the boundary. Where wagons could not be used they were replaced by sleds or jumpers, which were better suited to the roads across the bogs and marshes and to the narrow trails cut by the survey parties.



Transportation difficulties in the Highlands, 1915 and 1916



On the Highlands boundary, which extends from the source of the South-west Branch of the St. John River to the head of Halls Stream, the line traverses some of the most mountainous country east of the Rocky Mountains. Throughout this region, which is densely wooded, equipment and supplies were hauled by teams and wagons from the railroads to supply camps at the ends of logging roads, and were distributed from there to



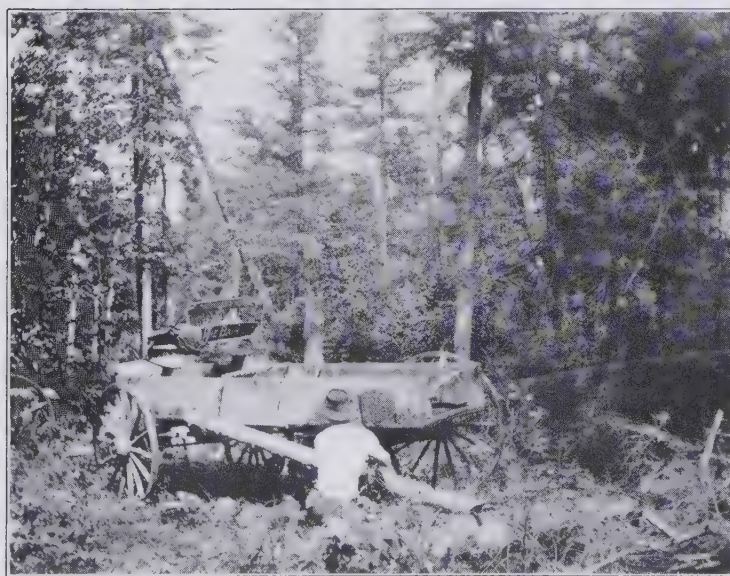
Supplies en route to one of the boundary camps, 1916

points on the boundary by jumpers or by pack trains operating over cut trails, although in many places animals could not be used at all and the packing was done by men.

The transportation difficulties in the Highlands can best be appreciated by following an average daily shipment of freight from one of the Canadian towns to survey camps near the boundary. Starting at Megantic, Quebec, which was the headquarters for the United States parties for parts of two seasons, 1915 and 1916, the daily shipment of mess supplies, monumenting materials, and forage, approximately 1 ton, was loaded on a steamboat at Lake Megantic and taken south 10 miles to Woburn Wharf, where it was transferred to heavy wagons and hauled 11 miles to a supply camp. From there it was taken in light loads over an 8-mile stretch of rough road ending at a pack-train base at Arnold Bog. Over this road 1,200 pounds was a good load for a 4-horse team. From the camp at Arnold Bog

the supplies were relayed to the survey camps by pack trains operating over trails cut through the timber and thick underbrush.

On the higher parts of the boundary ridge it was necessary to pack to the mountain tops not only the cement and boundary marks but also the water, sand, and gravel required for the concrete. This was done over trails cut into the mountain sides or built by felling trees against which rocks, brush, and earth were placed



Temporary substitute for broken wagon wheel



to afford footing for the pack animals. Some of the points were inaccessible to the animals, and the materials were taken over the final distances by men.

The magnitude of this part of the work of the survey can perhaps be most easily grasped by considering just the single item of transportation for the monumenting. For example, in 1916 there were put in place on the western half of the Highlands boundary 878 vitrified tiles filled with concrete to mark the intermediate boundary points, and there were set 84 large boundary monuments, each in a base containing, approximately, 1 cubic yard of concrete. The hollow cast-iron shafts of the monuments were also filled with concrete. This construction work alone for that season required the transporting to the boundary line of over 190 tons of materials.

The rest of the boundary, from the head of Halls Stream to the forty-fifth parallel and westward along the old Valentine and Collins line to the St. Lawrence River, is through a region of farms and good roads, and on this portion of the line the parties used teams and wagons and motor trucks.

### MAPS

Article III of the treaty of 1908 stipulates that "the course of the entire boundary, as described in Article I of the treaty of 1842 and as laid down as aforesaid under Article VI of that treaty, shall be marked by said commissioners upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose, and that said charts so marked shall be certified and signed by them and two duplicate originals thereof shall be filed with each Government."

The charts upon which the commissioners have marked the boundary line from the source of the St. Croix to the St. Lawrence River, in accordance with the above, are topographic maps prepared from the surveys made by the field force of the commission. They consist of a series of 61 sheets arranged and numbered as shown on the accompanying map. They have been engraved on copper plates and printed from stone, and the engraved plates will be preserved by the two Governments as permanent records of the work. The four official sets of maps, two for each Government, which bear the commissioners' signatures, are transmitted in portfolios and form a part of this report. The copies of the maps for public distribution are identical with the originals, except that there appear on each map the word "Copy" and the date of publication, and the commissioners' signatures are in facsimile.

The size of each sheet is 23 by 35 inches inside the border. The belt of topography shown has an average width of  $1\frac{1}{4}$  miles. The conventional signs used to represent the various topographic features are those adopted by the United States Board of Surveys and Maps. The boundary line, monuments, culture, and lettering appear in black; relief (20-foot contour lines) in brown; drainage in blue; and timber in green. The maps are constructed on the polyconic projection on scales of 1:6,000, 1:12,000 and 1:24,000, depending on the detail required to show clearly the location of the boundary line. At the top of each map are the title, the number of the sheet, the names of the commissioners, and copies of the seals of the two countries; and in the lower right-hand corner is the commissioners' certificate, which reads as follows:

We certify that this map is one of the quadruplicate set of sixty-one (61) maps adopted under Article III of the Treaty between Great Britain and the United States, signed at Washington April 11, 1908, and that we have marked thereon the Boundary Line as re-established by the Commissioners designated above, in accordance with the provisions of the said Article.

Signed (date of signature).

(Signed) J. J. McARTHUR,  
*His Britannic Majesty's Commissioner.*

(Signed) E. LESTER JONES,  
*United States Commissioner.*

In addition to the above, each sheet bears the necessary scales and explanatory notes, and the names of the chiefs of parties and their assistants who were responsible for the field work shown thereon.

#### PREPARATION OF THE MAPS

The first step in the preparation of the maps, after the completion of the surveys in the field, was the inking of the penciled plane-table sheets. This was done in the office at the close of the field seasons, usually by the topographers who had done the mapping. After inking the field drawings, the work on the 15 by 15 inch plane-table sheets was photographed on transparent celluloid sheets which were treated with graphite. The celluloid sheets were then adjusted to projections drawn on 24 by 36 inch office sheets and the field work transferred to these by rubbing the celluloid with an oiled burnisher. The graphite lines thus transferred were then inked in the various colors and the sheets delivered to the engraver. For the field work which had been done on the large plane-table sheets, size 30 by 50 inches, the above transfer process was unnecessary, and, after being inked, these were furnished to the engraver without any further preparation. The geographic positions of the control points, boundary monuments, reference monuments, and turning points to be shown on the maps were also given to the engraver.

For each map the engraver first engraved on a copper plate the lines of the polyconic projection carefully laid out to the publication scale of the map. From these projected parallels of latitude and meridians of longitude he then plotted the geographic positions of the control points, boundary monuments, reference monuments, and turning points. This operation was done under the supervision of the cartographer of the United States section of the commission, who verified the projection and checked the positions of the plotted points. By use of a wax transfer process the projection and control points were then transferred from this plate to two other copper plates, one for the brown lines of the map and one for the blue. The topographic drawings which had been furnished the engraver were photographed to the scale of the projection and wax impressions made of the negatives. These were transferred to the plates, which were then engraved, the part to be shown in brown on one plate and the part to be shown in blue on the other.

The three engraved copper plates were delivered to the printer, together with a timber sheet for the map showing the outlines of the wooded areas, the character of the forest growth, and sufficient control points for fitting this outline to the map projection. The printer "pulled" an impression from each of these three plates and transferred each impression to a lithographic stone. Likewise from standard



symbol patterns he transferred to a fourth stone the proper symbols for the areas outlined on the timber sheet. From these four stones the finished map was then printed.

A limited edition of the maps has been printed for each Government for distribution, either in the form of complete sets or individual maps. In the United States, copies of the report and maps are on file in the Library of Congress and in all other libraries designated by the Government as "depository libraries"; that is, those which receive all United States Government publications. In Canada they are on file in the Dominion archives, in the libraries of the Dominion Parliament and of the Provincial Legislative Assemblies, and in university and reference libraries throughout the country.

## DESCRIPTION AND DEFINITION OF THE INTERNATIONAL BOUNDARY LINE FROM THE SOURCE OF THE ST. CROIX RIVER TO THE ST. LAWRENCE RIVER

The international boundary line from the source of the St. Croix River to the St. Lawrence River as now reestablished consists of a series of straight-line courses joining consecutively numbered monuments along the land boundary and consecutively numbered "turning points" along the water boundary. The line has a length of 670.31 miles, 490.79 miles on land and 179.52 miles along the streams. It is marked on the land by 4,204 boundary monuments and 389 miles of cleared vista, and is referenced on the waterways by 548 reference monuments.

The description of the course of the line as surveyed and monumented by the commissioners, and as marked by them on the 61 boundary maps which accompany this report, is set forth in tabular form. The tables give the geographic positions of all the boundary monuments and boundary turning points, together with the lengths and azimuths of the boundary courses. They also give the geographic positions of the boundary reference monuments and the lengths and azimuths of the lines to the boundary turning points which they reference. The latitudes and longitudes are given on the North American datum, the lengths of the courses are given in meters, and the azimuths are reckoned clockwise, south being  $0^\circ$ , west  $90^\circ$ , north  $180^\circ$ , and east  $270^\circ$ .

The North American datum is the standard geodetic datum used by both countries. It has been adopted by the Geodetic Survey of Canada, the United States Coast and Geodetic Survey, and the Comisión Geodésica Mexicana. It may be defined, in terms of the position of the United States Coast and Geodetic Survey station "Meades Ranch" and the azimuth from that station to "Waldo," as follows:

	°	'	"
Latitude .....	39	13	26. 686
Longitude .....	98	32	30. 506
Azimuth to station "Waldo" .....	75	28	14. 52

Points are said to be upon the North American datum when they are connected with the station "Meades Ranch" by continuous triangulation or traverse through which the latitudes, longitudes, and azimuths have been computed on the Clarke Spheroid of 1866, as expressed in meters, starting with the above position and azimuth.

The distances given in the tables are reduced to sea level. If the actual horizontal distances are desired, the distances given in the tables should be increased by an amount equal to  $0.00000004785 L E$  in which  $L$  is the length of the course in meters and  $E$  is the mean elevation of the two ends of the course in feet. The maximum value of this increase, for any course on this part of the international boundary, is less than  $\frac{1}{5000}$  of the distance.



GEOGRAPHIC POSITIONS OF MONUMENTS MARKING THE INTERNATIONAL BOUNDARY  
FROM THE SOURCE OF THE ST. CROIX RIVER TO THE ST. JOHN RIVER

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 1 (initial monument).	45 56 37.00 67 46 54.71	180 05 53	Mon. 1-A	612.41	Mon. 14	46 05 24.61 67 46 54.58	359 55 59 179 55 59	Mon. 13-B	474.49
Mon. 1-A	45 56 56.84 67 46 54.66	0 05 53 180 05 53	Mon. 1	612.41	Mon. 14-A	46 05 42.72 67 46 54.61	359 55 59 179 55 59	Mon. 14	559.28
Mon. 1-B	45 57 22.59 67 46 54.66	0 05 53 180 06 13	Mon. 1-A	795.12	Mon. 15	46 06 08.52 67 46 54.66	359 55 59 179 55 59	Mon. 14-A	796.51
Mon. 2	45 57 34.94 67 46 54.57	0 06 13 180 06 13	Mon. 1-B	381.18	Mon. 15-A	46 06 24.39 67 46 54.68	359 55 59 179 55 59	Mon. 15	490.16
Mon. 2-A	45 57 49.47 67 46 54.53	0 06 13 180 06 13	Mon. 2	448.71	Mon. 15-B	46 06 38.93 67 46 54.71	359 55 59 179 55 59	Mon. 15-A	448.90
Mon. 3	45 58 26.93 67 46 54.43	0 06 13 180 06 13	Mon. 2-A	1,156.62	Mon. 16	46 06 45.90 67 46 54.72	359 55 59 179 59 48	Mon. 15-B	215.11
Mon. 3-A	45 58 53.36 67 46 54.36	0 06 13 180 06 13	Mon. 3	816.10	Mon. 16-A	46 06 48.74 67 46 54.72	359 59 48 179 59 48	Mon. 16-A	87.79
Mon. 4	45 59 13.59 67 46 54.31	0 06 13 180 06 13	Mon. 3-A	624.67	Mon. 17	46 07 16.60 67 46 54.72	359 59 48 179 59 48	Mon. 16	87.79
Mon. 5	45 59 32.15 67 46 54.26	0 06 13 180 08 39	Mon. 5	572.89	Mon. 17-A	46 07 48.06 67 46 54.72	359 59 48 179 59 48	Mon. 17	859.99
Mon. 5-A	45 59 46.60 67 46 54.21	0 08 39 180 08 39	Mon. 5-A	446.18	Mon. 18	46 07 57.24 67 46 54.72	359 59 48 179 59 48	Mon. 17-A	971.62
Mon. 6	46 00 15.97 67 46 54.11	0 08 39 180 08 39	Mon. 6	906.97	Mon. 18-A	46 08 00.10 67 46 54.72	359 59 48 179 59 48	Mon. 18	283.37
Mon. 6-A	46 00 40.50 67 46 54.02	0 08 39 180 08 39	Mon. 6-A	757.09	Mon. 19	46 08 00.74 67 46 54.72	359 59 48 179 59 48	Mon. 18-A	88.19
Mon. 7	46 01 03.58 67 46 53.94	0 08 39 180 08 39	Mon. 7	712.80	Mon. 19-A	46 08 03.91 67 46 54.72	359 59 48 179 59 48	Mon. 19	19.95
Mon. 8	46 01 37.83 67 46 53.81	0 08 39 180 08 33	Mon. 8	1,057.49	Mon. 19-B	46 08 15.90 67 46 54.73	359 59 48 179 59 48	Mon. 19-A	97.68
Mon. 8-A	46 02 02.37 67 46 53.72	0 08 33 179 48 55	Mon. 8-A	757.48	Mon. 20	46 08 37.46 67 46 54.73	359 59 48 179 48 30	Mon. 19-B	370.21
Mon. 9	46 02 16.81 67 46 53.67	0 08 33 179 48 55	Mon. 9	446.06	Mon. 20-A	46 08 48.70 67 46 54.82	359 59 48 179 48 30	Mon. 19-C	665.63
Mon. 10	46 02 42.76 67 46 53.79	359 48 55 179 48 55	Mon. 10	801.04	Mon. 21	46 09 34.59 67 46 54.95	359 48 30 179 48 30	Mon. 20	347.23
Mon. 10-A	46 03 01.11 67 46 53.88	359 48 55 179 48 55	Mon. 10-A	566.57	Mon. 21-A	46 10 10.54 67 46 55.12	359 48 30 179 48 30	Mon. 20-A	598.84
Mon. 10-B	46 03 05.01 67 46 53.80	359 48 55 179 48 35	Mon. 10-B	120.54	Mon. 21-B	46 10 17.70 67 46 55.16	359 48 30 179 48 30	Mon. 21	830.38
Mon. 10-C	46 03 14.89 67 46 53.94	359 48 35 179 48 30	Mon. 10-C	305.08	Mon. 21-C	46 10 21.85 67 46 55.18	359 48 30 179 48 34	Mon. 21-A	1,097.70
Mon. 10-D	46 03 25.46 67 46 53.99	359 48 30 179 48 14	Mon. 10-D	326.16	Mon. 22	46 10 33.15 67 46 55.23	359 48 30 179 48 33	Mon. 21-B	221.03
Mon. 10-E	46 03 29.13 67 46 54.01	359 48 14 179 48 15	Mon. 10-E	113.37	Mon. 22-A	46 11 07.45 67 46 55.40	359 48 30 179 48 33	Mon. 21-C	128.14
Mon. 11	46 03 34.64 67 46 54.04	359 48 15 179 42 41	Mon. 11	170.26	Mon. 23	46 11 25.38 67 46 55.48	359 48 33 179 42 58	Mon. 22	59.35
Mon. 11-A	46 03 38.99 67 46 54.07	359 42 40 179 42 40	Mon. 11-A	134.24	Mon. 23-A	46 11 51.27 67 46 55.67	359 48 33 179 42 58	Mon. 22-A	289.66
Mon. 11-B	46 04 09.33 67 46 54.29	359 42 40 179 42 40	Mon. 11-B	936.57	Mon. 24	46 12 17.68 67 46 55.86	359 48 33 179 42 58	Mon. 22-B	1,059.01
Mon. 12	46 04 32.63 67 46 54.46	359 42 40 179 42 34	Mon. 12	719.45	Mon. 24-A	46 12 48.29 67 46 56.07	359 42 58 179 42 58	Mon. 23	553.40
Mon. 13	46 04 39.49 67 46 54.51	359 42 34 179 55 59	Mon. 13	211.83	Mon. 24-B	46 13 01.05 67 46 56.16	359 42 58 179 42 58	Mon. 23-A	799.45
Mon. 13-A	46 05 05.93 67 46 54.55	359 55 59 179 55 59	Mon. 13-A	816.54	Mon. 25			Mon. 24	799.45
Mon. 13-B	46 05 09.24 67 46 54.56	359 55 59 179 55 59	Mon. 13-B	102.06				Mon. 24-A	815.44
			Mon. 14	474.49				Mon. 24-B	945.31
								Mon. 25	945.31
									48.87

## BOUNDARY MONUMENTS—SOURCE OF ST. CROIX RIVER TO ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 25-----	46 13 02.63 67 46 56.18	359 42 58 179 35 20	Mon. 24-B----- Mon. 25-A-----	48.87 38.23	Mon. 37-----	46 20 14.13 67 47 00.69	359 28 17 179 28 17	Mon. 36-A----- Mon. 37-A-----	651.49 809.83
Mon. 25-A-----	46 13 03.87 67 46 56.19	359 35 20 179 35 20	Mon. 25----- Mon. 25-B-----	38.23 29.81	Mon. 37-A-----	46 20 40.36 67 47 01.04	359 28 17 179 28 17	Mon. 37----- Mon. 38-----	809.83 520.51
Mon. 25-B-----	46 13 04.83 67 46 56.20	359 35 20 179 35 20	Mon. 25-A----- Mon. 26-----	29.81 183.45	Mon. 38-----	46 20 57.22 67 47 01.26	359 28 17 179 28 17	Mon. 37-A----- Mon. 39-----	520.51 497.90
Mon. 26-----	46 13 10.77 67 46 56.26	359 35 20 179 37 45	Mon. 25-B----- Mon. 26-A-----	183.45 706.77	Mon. 39-----	46 21 13.34 67 47 01.48	359 28 17 179 20 42	Mon. 38----- Mon. 39-A-----	497.90 342.74
Mon. 26-A-----	46 13 33.66 67 46 56.47	359 37 45 179 37 45	Mon. 26----- Mon. 27-----	706.77 108.59	Mon. 39-A-----	46 21 24.44 67 47 01.66	359 20 42 179 20 42	Mon. 39----- Mon. 39-B-----	342.74 437.66
Mon. 27-----	46 13 37.18 67 46 56.51	359 37 45 179 37 45	Mon. 26-A----- Mon. 27-A-----	108.59 560.26	Mon. 39-B-----	46 21 38.62 67 47 01.90	359 20 42 179 20 42	Mon. 39-A----- Mon. 40-----	437.66 630.99
Mon. 27-A-----	46 13 55.33 67 46 56.68	359 37 45 179 37 45	Mon. 27----- Mon. 28-----	560.26 225.49	Mon. 40-----	46 21 59.05 67 47 02.23	359 20 42 179 20 42	Mon. 39-B----- Mon. 40-A-----	630.99 162.30
Mon. 28-----	46 14 02.63 67 46 56.74	359 37 45 179 37 45	Mon. 27-A----- Mon. 28-A-----	225.49 212.94	Mon. 40-A-----	46 22 04.31 67 47 02.32	359 20 42 179 20 42	Mon. 40----- Mon. 40-B-----	162.30 978.88
Mon. 28-A-----	46 14 09.53 67 46 56.81	359 37 45 179 37 45	Mon. 28----- Mon. 28-B-----	212.94 662.42	Mon. 40-B-----	46 22 36.01 67 47 02.84	359 20 41 179 20 41	Mon. 40-A----- Mon. 41-----	978.88 318.60
Mon. 28-B-----	46 14 30.98 67 46 57.01	359 37 44 179 37 44	Mon. 28-A----- Mon. 28-C-----	662.42 489.73	Mon. 41-----	46 22 46.33 67 47 03.01	359 20 41 179 20 41	Mon. 40-B----- Mon. 41-A-----	318.60 121.67
Mon. 28-C-----	46 14 46.84 67 46 57.16	359 37 44 179 37 44	Mon. 28-B----- Mon. 29-----	489.73 229.27	Mon. 41-A-----	46 22 50.27 67 47 03.08	359 20 41 179 20 41	Mon. 41----- Mon. 41-B-----	121.67 353.76
Mon. 29-----	46 14 54.27 67 46 57.22	359 37 44 179 55 02	Mon. 28-C----- Mon. 29-A-----	229.27 260.71	Mon. 41-B-----	46 23 01.73 67 47 03.27	359 20 41 179 20 41	Mon. 41-A----- Mon. 42-----	353.76 1,082.71
Mon. 29-A-----	46 15 02.71 67 46 57.24	359 55 02 179 55 02	Mon. 29----- Mon. 29-B-----	260.71 1,106.49	Mon. 42-----	46 23 36.79 67 47 03.85	359 20 41 179 20 41	Mon. 41-B----- Mon. 42-A-----	1,082.71 781.27
Mon. 29-B-----	46 15 38.55 67 46 57.32	359 55 02 179 55 02	Mon. 29-A----- Mon. 30-----	1,106.49 245.39	Mon. 42-A-----	46 24 02.10 67 47 04.27	359 20 40 179 20 40	Mon. 42----- Mon. 43-----	781.27 817.90
Mon. 30-----	46 15 46.49 67 46 57.33	359 55 02 179 32 03	Mon. 29-B----- Mon. 30-A-----	245.39 188.56	Mon. 43-----	46 24 28.58 67 47 04.70	359 20 40 179 20 40	Mon. 42-A----- Mon. 43-A-----	817.90 528.35
Mon. 30-A-----	46 15 52.60 67 46 57.40	359 32 03 179 32 03	Mon. 30----- Mon. 30-B-----	188.56 679.66	Mon. 43-A-----	46 24 45.70 67 47 04.99	359 20 40 179 20 40	Mon. 43----- Mon. 43-B-----	528.35 212.59
Mon. 30-B-----	46 16 14.61 67 46 57.66	359 32 03 179 32 03	Mon. 30-A----- Mon. 31-----	679.66 356.66	Mon. 43-B-----	46 24 52.58 67 47 05.10	359 20 40 179 20 40	Mon. 43-A----- Mon. 44-----	212.59 390.73
Mon. 31-----	46 16 26.16 67 46 57.80	359 32 03 179 32 03	Mon. 30-B----- Mon. 32-----	356.66 590.78	Mon. 44-----	46 25 05.24 67 47 05.31	359 20 39 179 15 42	Mon. 43-B----- Mon. 44-A-----	390.73 185.95
Mon. 32-----	46 16 45.30 67 46 58.02	359 32 03 179 32 03	Mon. 31----- Mon. 32-A-----	590.78 534.26	Mon. 44-A-----	46 25 11.26 67 47 05.42	359 15 42 179 15 42	Mon. 44----- Mon. 45-----	185.95 430.42
Mon. 32-A-----	46 17 02.60 67 46 58.23	359 32 03 179 32 03	Mon. 32----- Mon. 32-B-----	534.26 278.16	Mon. 45-----	46 25 25.20 67 47 05.68	359 15 42 179 15 42	Mon. 44-A----- Mon. 45-A-----	430.42 558.62
Mon. 32-B-----	46 17 11.61 67 46 58.33	359 32 03 179 32 03	Mon. 32-A----- Mon. 33-----	278.16 893.89	Mon. 45-A-----	46 25 43.29 67 47 06.02	359 15 42 179 15 42	Mon. 45----- Mon. 45-B-----	558.62 713.64
Mon. 33-----	46 17 40.56 67 46 58.67	359 32 02 179 32 02	Mon. 32-B----- Mon. 33-A-----	893.89 366.92	Mon. 45-B-----	46 26 06.40 67 47 06.45	359 15 41 179 15 41	Mon. 45-A----- Mon. 46-----	713.64 301.18
Mon. 33-A-----	46 17 52.44 67 46 58.81	359 32 02 179 32 02	Mon. 33----- Mon. 34-----	366.92 190.54	Mon. 46-----	46 26 16.15 67 47 06.63	359 15 41 179 15 41	Mon. 45-B----- Mon. 46-A-----	301.18 522.17
Mon. 34-----	46 17 58.61 67 46 58.88	359 32 02 179 28 05	Mon. 33-A----- Mon. 35-----	190.54 697.88	Mon. 46-A-----	46 26 33.06 67 47 06.95	359 15 41 179 15 41	Mon. 46----- Mon. 47-----	522.17 381.62
Mon. 35-----	46 18 21.22 67 46 59.19	359 28 05 179 28 05	Mon. 34----- Mon. 35-A-----	697.88 375.50	Mon. 47-----	46 26 45.42 67 47 07.18	359 15 41 179 15 38	Mon. 46-A----- Mon. 47-A-----	381.62 130.77
Mon. 35-A-----	46 18 33.38 67 46 59.35	359 28 05 179 28 18	Mon. 35----- Mon. 35-B-----	375.50 713.49	Mon. 47-A-----	46 26 49.66 67 47 07.26	359 15 38 179 15 38	Mon. 47----- Mon. 48-----	130.77 278.73
Mon. 35-B-----	46 18 56.48 67 46 59.66	359 28 18 179 28 18	Mon. 35-A----- Mon. 35-C-----	713.49 197.76	Mon. 48-----	46 26 58.69 67 47 07.43	359 15 38 179 15 38	Mon. 47-A----- Mon. 48-A-----	278.73 64.70
Mon. 35-C-----	46 19 02.89 67 46 59.74	359 28 18 179 28 18	Mon. 35-B----- Mon. 35-D-----	197.76 36.27	Mon. 48-A-----	46 27 00.78 67 47 07.46	359 15 38 179 15 38	Mon. 48----- Mon. 49-----	64.70 26.29
Mon. 35-D-----	46 19 04.06 67 46 59.76	359 28 18 179 28 18	Mon. 35-C----- Mon. 35-E-----	36.27 59.53	Mon. 49-----	46 27 01.63 67 47 07.48	359 15 38 179 15 38	Mon. 48-A----- Mon. 49-A-----	26.29 312.59
Mon. 35-E-----	46 19 05.99 67 46 59.78	359 28 18 179 28 18	Mon. 35-D----- Mon. 36-----	59.53 592.79	Mon. 49-A-----	46 27 11.76 67 47 07.67	359 15 38 179 15 38	Mon. 49----- Mon. 49-B-----	312.59 163.58
Mon. 36-----	46 19 25.19 67 47 00.04	359 28 18 179 28 18	Mon. 35-E----- Mon. 36-A-----	592.79 859.78	Mon. 49-B-----	46 27 17.05 67 47 07.77	359 15 38 179 15 38	Mon. 49-A----- Mon. 49-C-----	163.58 245.09
Mon. 36-A-----	46 19 53.03 67 47 00.41	359 28 17 179 28 17	Mon. 36----- Mon. 37-----	859.78 651.49	Mon. 49-C-----	46 27 24.99 67 47 07.92	359 15 38 179 15 38	Mon. 49-B----- Mon. 49-D-----	245.09 752.44



## BOUNDARY MONUMENTS—SOURCE OF ST. CROIX RIVER TO ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 49-D	46 27 49.36 67 47 08.37	359 15 37 179 15 37	Mon. 49-C	752.44	Mon. 62	46 36 05.20 67 47 20.14	359 01 00 179 54 19	Mon. 61-A	102.78
			Mon. 50	284.31				Mon. 62-A	339.08
Mon. 50	46 27 58.57 67 47 08.54	359 15 37 179 10 58	Mon. 49-D	284.31	Mon. 62-A	46 36 16.18 67 47 20.16	359 54 19 179 54 19	Mon. 62	339.08
			Mon. 50-A	262.65				Mon. 63	630.50
Mon. 50-A	46 28 07.07 67 47 08.72	359 10 58 179 10 58	Mon. 50	262.65	Mon. 63	46 36 36.60 67 47 20.21	359 54 19 179 54 19	Mon. 62-A	630.50
			Mon. 50-B	647.08				Mon. 63-A	388.78
Mon. 50 B	46 28 28.03 67 47 09.15	359 10 58 179 10 58	Mon. 50-A	647.08	Mon. 63-A	46 36 49.19 67 47 20.24	359 54 19 179 54 32	Mon. 63	388.78
			Mon. 50-C	334.40				Mon. 64	235.85
Mon. 50 C	46 28 38.86 67 47 09.38	359 10 58 179 10 58	Mon. 50-B	334.40	Mon. 64	46 36 56.83 67 47 20.26	359 54 32 179 43 23	Mon. 63-A	235.85
			Mon. 51	244.63				Mon. 65	1,020.11
Mon. 51	46 28 46.78 67 47 09.54	359 10 58 179 10 58	Mon. 50-C	244.63	Mon. 65	46 37 29.86 67 47 20.49	359 43 23 179 43 23	Mon. 64	1,020.11
			Mon. 51-A	245.54				Mon. 66	738.31
Mon. 51 A	46 28 54.73 67 47 09.70	359 10 58 179 10 58	Mon. 51	245.54	Mon. 66	46 37 53.78 67 47 20.66	359 43 23 179 43 39	Mon. 65	738.31
			Mon. 51-B	695.94				Mon. 66-A	154.71
Mon. 51-B	46 29 17.27 67 47 10.17	359 10 57 179 10 57	Mon. 51-A	695.94	Mon. 66-A	46 37 58.78 67 47 20.70	359 43 39 179 43 39	Mon. 66	154.71
			Mon. 51-C	392.54				Mon. 66-B	226.32
Mon. 51-C	46 29 29.98 67 47 10.43	359 10 57 179 10 57	Mon. 51-B	392.54	Mon. 66-B	46 38 06.11 67 47 20.75	359 43 39 179 43 39	Mon. 66-A	226.32
			Mon. 52	619.60				Mon. 66-C	55.86
Mon. 52	46 29 50.05 67 47 10.85	359 10 57 179 10 57	Mon. 51-C	619.66	Mon. 66-C	46 38 07.92 67 47 20.76	359 43 39 179 43 39	Mon. 66-B	55.86
			Mon. 52-A	637.20				Mon. 67	284.07
Mon. 52-A	46 30 10.69 67 47 11.27	359 10 56 179 10 56	Mon. 52	637.20	Mon. 67	46 38 17.12 67 47 20.82	359 43 39 179 43 39	Mon. 66-C	284.07
			Mon. 53	286.78				Mon. 67-A	521.81
Mon. 53	46 30 19.98 67 47 11.46	359 10 56 179 00 15	Mon. 52-A	286.78	Mon. 67-A	46 38 34.02 67 47 20.94	359 43 39 179 43 39	Mon. 67	521.81
			Mon. 54	507.11				Mon. 67-B	345.78
Mon. 54	46 30 36.40 67 47 11.88	359 00 15 179 00 15	Mon. 53	507.11	Mon. 67-B	46 38 45.22 67 47 21.02	359 43 39 179 43 39	Mon. 67-A	345.78
			Mon. 54-A	682.57				Mon. 67-C	717.98
Mon. 54-A	46 30 58.50 67 47 12.44	359 00 15 179 00 15	Mon. 54	682.57	Mon. 67-C	46 39 08.47 67 47 21.18	359 43 38 179 43 38	Mon. 67-B	717.98
			Mon. 55	710.89				Mon. 67-D	126.14
Mon. 55	46 31 21.53 67 47 13.02	359 00 14 179 00 14	Mon. 54-A	710.89	Mon. 67-D	46 39 12.56 67 47 21.20	359 43 38 179 43 38	Mon. 67-C	126.14
			Mon. 55-A	542.57				Mon. 68	160.68
Mon. 55 A	46 31 39.10 67 47 13.46	359 00 14 179 00 20	Mon. 55	542.57	Mon. 68	46 39 17.76 67 47 21.24	359 43 38 179 44 18	Mon. 67-D	160.68
			Mon. 55-B	321.93				Mon. 68-A	409.21
Mon. 55-B	46 31 49.52 67 47 13.72	359 00 20 179 00 20	Mon. 55-A	321.93	Mon. 68-A	46 39 31.01 67 47 21.33	359 44 18 179 44 18	Mon. 68	409.21
			Mon. 55-C	508.21				Mon. 68-B	526.83
Mon. 55-C	46 32 05.98 67 47 14.13	359 00 20 179 00 20	Mon. 55-B	508.21	Mon. 68-B	46 39 48.07 67 47 21.44	359 44 18 179 44 18	Mon. 68-A	526.83
			Mon. 56	450.62				Mon. 69	668.71
Mon. 56	46 32 20.58 67 47 14.50	359 00 20 179 00 20	Mon. 55-C	450.62	Mon. 69	46 40 09.73 67 47 21.59	359 44 18 179 44 18	Mon. 68-B	668.71
			Mon. 56-A	495.58				Mon. 69-A	406.22
Mon. 56-A	46 32 36.62 67 47 14.90	359 00 19 179 00 19	Mon. 56	495.58	Mon. 69-A	46 40 22.88 67 47 21.67	359 44 18 179 44 18	Mon. 69	406.22
			Mon. 57	1,029.96				Mon. 69-B	232.40
Mon. 57	46 33 09.98 67 47 15.74	359 00 18 179 00 18	Mon. 56-A	1,029.96	Mon. 69-B	46 40 30.41 67 47 21.72	359 44 18 179 44 18	Mon. 69-A	232.40
			Mon. 57-A	595.98				Mon. 70	75.82
Mon. 57 A	46 33 29.28 67 47 16.23	359 00 18 179 00 18	Mon. 57	595.98	Mon. 70	46 40 32.87 67 47 21.74	359 44 18 179 44 18	Mon. 69-B	75.82
			Mon. 57-B	464.65				Mon. 71	699.69
Mon. 57 B	46 33 44.33 67 47 16.61	359 00 18 179 00 18	Mon. 57-A	464.65	Mon. 71	46 40 55.52 67 47 21.89	359 44 17 179 44 17	Mon. 70	699.69
			Mon. 58	770.20				Mon. 71-A	562.00
Mon. 58	46 34 09.27 67 47 17.24	359 00 17 179 00 17	Mon. 57-B	770.20	Mon. 71-A	46 41 13.72 67 47 22.01	359 44 17 179 44 12	Mon. 71	562.00
			Mon. 58-A	728.19				Mon. 71-B	248.58
Mon. 58 A	46 34 32.86 67 47 17.83	359 00 17 179 00 17	Mon. 58	728.19	Mon. 71-B	46 41 21.78 67 47 22.06	359 44 12 179 44 12	Mon. 71-A	248.58
			Mon. 58-B	511.44				Mon. 71-C	686.37
Mon. 58-B	46 34 49.42 67 47 18.25	359 00 16 179 00 16	Mon. 58-B	511.44	Mon. 71-C	46 41 44.00 67 47 22.21	359 44 12 179 44 12	Mon. 71-B	686.37
			Mon. 59	162.80				Mon. 72	745.09
Mon. 59	46 34 54.69 67 47 18.38	359 00 16 179 00 11	Mon. 58-B	162.80	Mon. 72	46 42 08.13 67 47 22.38	359 44 12 179 44 12	Mon. 71-C	745.09
			Mon. 59-A	354.92				Mon. 72-A	425.64
Mon. 59 A	46 35 06.18 67 47 18.67	359 00 11 179 00 11	Mon. 59	354.92	Mon. 72-A	46 42 21.92 67 47 22.47	359 44 12 179 45 40	Mon. 72	425.64
			Mon. 60	527.41				Mon. 72-B	201.44
Mon. 60	46 35 23.26 67 47 19.09	359 00 11 179 01 01	Mon. 59-A	527.41	Mon. 72-B	46 42 28.44 67 47 22.51	359 45 40 179 45 40	Mon. 72-A	201.44
			Mon. 60-A	375.19				Mon. 73	558.50
Mon. 60 A	46 35 35.42 67 47 19.40	359 01 01 179 01 01	Mon. 60	375.19	Mon. 73	46 42 46.53 67 47 22.62	359 45 40 179 40 31	Mon. 72-B	558.50
			Mon. 61	765.72				Mon. 73-A	177.91
Mon. 61	46 36 00.21 67 47 20.01	359 01 00 179 01 00	Mon. 60-A	765.72	Mon. 73-A	46 42 52.29 67 47 22.66	359 40 31 179 40 31	Mon. 73	177.91
			Mon. 61-A	51.22				Mon. 73-B	943.26
Mon. 61-A	46 36 01.87 67 47 20.05	359 01 00 179 01 00	Mon. 61-A	51.22	Mon. 73-B	46 43 22.84 67 47 22.92	359 40 31 179 40 31	Mon. 73-A	943.26
			Mon. 62	102.78				Mon. 73-C	199.74

## BOUNDARY MONUMENTS—SOURCE OF ST. CROIX RIVER TO ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 73-C	46 43 29.30 67 47 22.97	359 40 31 179 40 31	Mon. 73-B Mon. 74	199.74 645.49	Mon. 89	46 50 24.53 67 47 24.73	0 12 42 180 12 42	Mon. 88-A Mon. 89-A	1,063.59 763.31
Mon. 74	46 43 50.21 67 47 23.14	359 40 31 179 40 31	Mon. 73-C Mon. 74-A	645.49 612.23	Mon. 89-A	46 50 49.25 67 47 24.60	0 12 42 180 12 42	Mon. 89 Mon. 89-B	763.31 399.43
Mon. 74-A	46 44 10.03 67 47 23.31	359 40 31 179 40 31	Mon. 74 Mon. 75	612.23 420.51	Mon. 89-B	46 51 02.18 67 47 24.53	0 12 42 180 12 42	Mon. 89-A Mon. 90	399.43 292.51
Mon. 75	46 44 23.65 67 47 23.42	359 40 31 179 40 31	Mon. 74-A Mon. 75-A	420.51 673.53	Mon. 90	46 51 11.65 67 47 24.48	0 12 42 180 12 42	Mon. 89-B Mon. 91	292.51 515.92
Mon. 75-A	46 44 45.46 67 47 23.60	359 40 30 179 40 30	Mon. 75 Mon. 75-B	673.53 178.22	Mon. 91	46 51 28.36 67 47 24.39	0 12 42 179 58 39	Mon. 90 Mon. 91-A	515.92 89.39
Mon. 75-B	46 44 51.23 67 47 23.65	359 40 30 179 40 30	Mon. 75-A Mon. 75-C	178.22 507.44	Mon. 91-A	46 51 31.26 67 47 24.39	359 58 39 179 59 14	Mon. 91 Mon. 91-B	89.39 226.31
Mon. 75-C	46 45 07.67 67 47 23.78	359 40 30 179 40 30	Mon. 75-B Mon. 76	507.44 331.15	Mon. 91-B	46 51 38.58 67 47 24.39	359 59 14 179 59 14	Mon. 91-A Mon. 91-C	226.31 523.54
Mon. 76	46 45 18.39 67 47 23.87	359 40 30 179 40 30	Mon. 75-C Mon. 77	331.15 340.62	Mon. 91-C	46 51 55.54 67 47 24.40	359 59 14 179 59 14	Mon. 91-B Mon. 92	523.54 644.53
Mon. 77	46 45 29.42 67 47 23.96	359 40 30 179 40 30	Mon. 76 Mon. 77-A	340.62 419.78	Mon. 92	46 52 16.41 67 47 24.40	359 59 14 179 59 30	Mon. 91-C Mon. 92-A	644.53 630.64
Mon. 77-A	46 45 43.02 67 47 24.07	359 40 30 179 40 30	Mon. 77 Mon. 77-B	419.78 233.49	Mon. 92-A	46 52 36.83 67 47 24.41	359 59 30 179 59 30	Mon. 92 Mon. 93	630.64 94.76
Mon. 77-B	46 45 50.58 67 47 24.14	359 40 30 179 40 30	Mon. 77-A Mon. 78	233.49 165.20	Mon. 93	46 52 39.90 67 47 24.41	359 59 30 179 59 30	Mon. 92-A Mon. 93-A	94.76 567.13
Mon. 78	46 45 55.93 67 47 24.18	359 40 30 179 40 30	Mon. 77-B Mon. 78-A	165.20 80.86	Mon. 93-A	46 52 58.27 67 47 24.41	359 59 30 179 59 30	Mon. 93 Mon. 94	567.13 487.62
Mon. 78-A	46 45 58.55 67 47 24.20	359 40 30 179 40 30	Mon. 78 Mon. 79	80.86 549.72	Mon. 94	46 53 14.06 67 47 24.42	359 59 30 179 59 30	Mon. 93-A Mon. 94-A	487.62 757.72
Mon. 79	46 46 16.35 67 47 24.35	359 40 30 179 40 30	Mon. 78-A Mon. 79-A	549.72 529.48	Mon. 94-A	46 53 38.60 67 47 24.42	359 59 30 179 59 30	Mon. 94 Mon. 95	757.72 690.80
Mon. 79-A	46 46 33.50 67 47 24.49	359 40 30 179 40 30	Mon. 79 Mon. 80	529.48 472.33	Mon. 95	46 54 00.97 67 47 24.42	359 59 30 179 59 30	Mon. 94-A Mon. 95-A	690.80 348.19
Mon. 80	46 46 48.79 67 47 24.62	359 40 30 179 40 30	Mon. 79-A Mon. 81	472.33 435.33	Mon. 95-A	46 54 12.24 67 47 24.43	359 59 30 179 59 30	Mon. 95 Mon. 95-B	348.19 514.36
Mon. 81	46 47 02.89 67 47 24.73	359 40 30 179 40 30	Mon. 80 Mon. 81-A	435.33 640.34	Mon. 95-B	46 54 28.90 67 47 24.43	359 59 30 179 59 30	Mon. 95-A Mon. 96	514.36 484.51
Mon. 81-A	46 47 23.63 67 47 24.90	359 40 29 179 40 29	Mon. 81 Mon. 81-B	640.34 300.73	Mon. 96	46 54 44.59 67 47 24.44	359 59 30 179 40 45	Mon. 95-B Mon. 97	484.51 463.47
Mon. 81-B	46 47 33.36 67 47 24.98	359 40 29 179 40 27	Mon. 81-A Mon. 82	300.73 126.93	Mon. 97	46 54 59.60 67 47 24.56	359 40 45 179 40 45	Mon. 96 Mon. 97-A	463.47 330.63
Mon. 82	46 47 37.48 67 47 25.02	359 40 27 179 40 27	Mon. 81-B Mon. 83	126.93 135.19	Mon. 97-A	46 55 10.30 67 47 24.64	359 40 45 179 40 45	Mon. 97 Mon. 97-B	330.63 588.08
Mon. 83	46 47 41.85 67 47 25.05	359 40 27 179 40 27	Mon. 82 Mon. 84	135.19 124.00	Mon. 97-B	46 55 29.35 67 47 24.80	359 40 45 179 40 45	Mon. 97-A Mon. 98	588.08 219.16
Mon. 84	46 47 45.87 67 47 25.09	359 40 27 179 40 27	Mon. 83 Mon. 84-A	124.00 145.06	Mon. 98	46 55 36.44 67 47 24.86	359 40 45 179 53 28	Mon. 97-B Mon. 99	219.16 530.60
Mon. 84-A	46 47 50.57 67 47 25.12	359 40 27 179 40 27	Mon. 84 Mon. 85	145.06 168.57	Mon. 99	46 55 53.63 67 47 24.91	359 53 28 179 53 28	Mon. 98 Mon. 99-A	530.60 630.82
Mon. 85	46 47 56.02 67 47 25.17	359 40 27 179 40 27	Mon. 84-A Mon. 85-A	168.57 370.46	Mon. 99-A	46 56 14.06 67 47 24.96	359 53 28 179 53 28	Mon. 99 Mon. 99-B	630.82 657.78
Mon. 85-A	46 48 08.02 67 47 25.27	359 40 27 179 40 27	Mon. 85 Mon. 86	370.46 428.27	Mon. 99-B	46 56 35.36 67 47 25.02	359 53 28 179 53 28	Mon. 99-A Mon. 100	657.78 223.55
Mon. 86	46 48 21.89 67 47 25.38	359 40 27 180 12 29	Mon. 85-A Mon. 86-A	428.27 306.80	Mon. 100	46 56 42.60 67 47 25.04	359 53 28 179 53 28	Mon. 99-B Mon. 100-A	223.55 449.62
Mon. 86-A	46 48 31.83 67 47 25.33	0 12 29 180 12 29	Mon. 86 Mon. 87	306.80 1,019.32	Mon. 100-A	46 56 57.16 67 47 25.08	359 53 28 179 53 28	Mon. 100 Mon. 100-B	449.62 257.36
Mon. 87	46 49 04.84 67 47 25.16	0 12 29 180 12 29	Mon. 86-A Mon. 87-A	1,019.32 625.44	Mon. 100-B	46 57 05.49 67 47 25.11	359 53 28 179 53 28	Mon. 100-A Mon. 100-C	257.36 225.38
Mon. 87-A	46 49 25.09 67 47 25.05	0 12 29 180 12 29	Mon. 87 Mon. 87-B	625.44 172.41	Mon. 100-C	46 57 12.79 67 47 25.13	359 53 28 179 53 28	Mon. 100-B Mon. 101	225.38 513.44
Mon. 87-B	46 49 30.67 67 47 25.02	0 12 29 180 12 42	Mon. 87-A Mon. 88	172.41 173.82	Mon. 101	46 57 29.42 67 47 25.17	359 53 28 179 53 28	Mon. 100-C Mon. 101-A	513.44 515.49
Mon. 88	46 49 36.30 67 47 24.99	0 12 42 180 12 42	Mon. 87-B Mon. 88-A	173.82 425.62	Mon. 101-A	46 57 46.11 67 47 25.22	359 53 28 179 53 28	Mon. 101 Mon. 101-B	515.49 836.82
Mon. 88-A	46 49 50.08 67 47 24.92	0 12 42 180 12 42	Mon. 88 Mon. 89	425.62 1,063.59	Mon. 101-B	46 58 13.21 67 47 25.29	359 53 27 179 53 27	Mon. 101-A Mon. 102	836.82 432.09



## BOUNDARY MONUMENTS—SOURCE OF ST. CROIX RIVER TO ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
Mon. 102-----	° ' " 46 58 27.20 67 47 25.33	° ' " 359 53 27 179 53 20	Mon. 101-B----- Mon. 103-----	432.09 703.46	Mon. 110-A-----	° ' " 47 02 16.21 67 47 26.37	° ' " 359 42 42 179 42 42	Mon. 110----- Mon. 110-B-----	500.03 491.96
Mon. 103-----	46 58 49.98 67 47 25.40	359 53 20 179 53 37	Mon. 102----- Mon. 104-----	703.46 124.72	Mon. 110-B-----	47 02 32.14 67 47 26.48	359 42 42 179 42 42	Mon. 110-A----- Mon. 111-----	491.96 119.68
Mon. 104-----	46 58 54.02 67 47 25.41	359 53 37 179 53 37	Mon. 103----- Mon. 104-A-----	124.72 422.66	Mon. 111-----	47 02 36.02 67 47 26.51	359 42 42 179 42 42	Mon. 110-B----- Mon. 111-A-----	119.68 179.66
Mon. 104-A-----	46 59 07.71 67 47 25.45	359 53 37 179 53 37	Mon. 104----- Mon. 105-----	422.66 144.32	Mon. 111-A-----	47 02 41.84 67 47 26.56	359 42 42 179 42 36	Mon. 111----- Mon. 112-----	179.66 158.16
Mon. 105-----	46 59 12.38 67 47 25.46	359 53 37 179 53 37	Mon. 104-A----- Mon. 105-A-----	144.32 815.87	Mon. 112-----	47 02 46.96 67 47 26.59	359 42 36 179 42 36	Mon. 111-A----- Mon. 113-----	158.16 656.06
Mon. 105-A-----	46 59 38.80 67 47 25.53	359 53 37 179 53 37	Mon. 105----- Mon. 106-----	815.87 782.21	Mon. 113-----	47 03 08.21 67 47 26.75	359 42 36 179 42 27	Mon. 112----- Mon. 113-A-----	656.06 738.46
Mon. 106-----	47 00 04.13 67 47 25.60	359 53 37 179 53 37	Mon. 105-A----- Mon. 106-A-----	782.21 779.95	Mon. 113-A-----	47 03 32.12 67 47 26.93	359 42 27 179 42 27	Mon. 113----- Mon. 114-----	738.46 218.10
Mon. 106-A-----	47 00 29.39 67 47 25.67	359 53 37 179 53 37	Mon. 106----- Mon. 107-----	779.95 595.91	Mon. 114-----	47 03 39.18 67 47 26.98	359 42 27 179 42 27	Mon. 113-A----- Mon. 114-A-----	218.10 42.16
Mon. 107-----	47 00 48.68 67 47 25.72	359 53 37 179 42 37	Mon. 106-A----- Mon. 108-----	595.91 831.84	Mon. 114-A-----	47 03 40.55 67 47 26.99	359 42 27 179 42 27	Mon. 114----- Mon. 115-----	42.16 166.43
Mon. 108-----	47 01 15.62 67 47 25.92	359 42 36 179 42 36	Mon. 107----- Mon. 109-----	831.84 570.79	Mon. 115-----	47 03 45.94 67 47 27.03	359 42 27 179 42 27	Mon. 114-A----- Mon. 116-----	166.43 226.46
Mon. 109-----	47 01 34.10 67 47 26.06	359 42 36 179 42 36	Mon. 108----- Mon. 109-A-----	570.79 156.15	Mon. 116-----	47 03 53.27 67 47 27.09	359 42 27 179 42 27	Mon. 115----- Mon. 117-----	226.46 145.46
Mon. 109-A-----	47 01 39.16 67 47 26.09	359 42 36 179 42 42	Mon. 109----- Mon. 110-----	156.15 644.23	Mon. 117-----	47 03 57.98 67 47 27.12	359 42 27 179 42 27	Mon. 116----- T. P. 1-----	145.46 139.2
Mon. 110-----	47 02 00.02 67 47 26.25	359 42 42 179 42 42	Mon. 109-A----- Mon. 110-A-----	644.23 500.03					

104709—25†—11

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS DEFINING THE INTERNATIONAL  
BOUNDARY THROUGH THE ST. JOHN RIVER

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 1-----	47 04 02.49 67 47 27.16	56 04 30 127 12 00 236 04 30 359 42 30	Ref. Mon. S-1----- T. P. 2----- Ref. Mon. C-1----- Mon. 117-----	123.6 419.4 171.0 139.2	T. P. 18-----	47 07 10.83 67 53 23.51	2 40 00 19 18 20 163 49 50 199 18 20	T. P. 17----- Ref. Mon. S-16----- T. P. 19----- Ref. Mon. C-16-----	602.9 425.3 324.9 371.4
T. P. 2-----	47 04 10.70 67 47 42.99	116 27 50 139 33 30 307 11 50 319 33 30	T. P. 3----- Ref. Mon. C-2----- T. P. 1----- Mon. 117-----	783.9 303.9 419.4 516.1	T. P. 19-----	47 07 20.94 67 53 27.81	79 47 00 189 17 30 259 47 00 343 49 50	Ref. Mon. S-17----- T. P. 20----- Ref. Mon. C-16----- T. P. 18-----	272.5 221.3 216.7 324.9
T. P. 3-----	47 04 22.01 67 48 16.25	35 31 10 123 58 20 215 31 10 296 27 30	Ref. Mon. S-3----- T. P. 4----- Ref. Mon. C-3----- T. P. 2-----	175.8 675.9 108.2 783.9	T. P. 20-----	47 07 28.01 67 53 26.11	9 17 30 135 23 40 165 27 10 315 23 40	T. P. 19----- Ref. Mon. 120----- T. P. 21----- Ref. Mon. C-16-----	221.3 170.1 248.8 252.8
T. P. 4-----	47 04 34.24 67 48 42.82	39 34 50 143 52 20 219 34 50 303 58 00	Ref. Mon. S-4----- T. P. 5----- Ref. Mon. C-4----- T. P. 3-----	116.2 736.0 154.6 675.9	T. P. 21-----	47 07 35.81 67 53 29.08	25 26 10 25 26 10 144 44 10 345 27 10	Ref. Mon. S-17----- Ref. Mon. 120----- T. P. 22----- T. P. 20-----	562.0 132.6 364.2 248.8
T. P. 5-----	47 04 53.49 67 49 03.39	81 20 10 125 18 20 261 20 10 323 52 10	Ref. Mon. S-6----- T. P. 6----- Ref. Mon. C-5----- T. P. 4-----	366.2 389.0 172.5 736.0	T. P. 22-----	47 07 45.44 67 53 39.05	159 49 00 159 49 00 324 44 00 339 49 00	T. P. 23----- Ref. Mon. C-17----- T. P. 21----- Ref. Mon. 120-----	155.0 356.4 364.2 444.4
T. P. 6-----	47 05 00.77 67 49 18.44	110 34 40 143 29 50 305 18 10 323 29 50	T. P. 7----- Ref. Mon. C-6----- T. P. 5----- Ref. Mon. S-5-----	397.7 309.3 389.0 709.9	T. P. 23-----	47 07 50.15 67 53 41.59	134 15 40 159 49 00 339 49 00 339 49 00	T. P. 24----- Ref. Mon. C-17----- Ref. Mon. 120----- T. P. 22-----	198.6 201.4 599.4 155.0
T. P. 7-----	47 05 05.30 67 49 36.08	59 58 00 95 26 40 239 58 00 290 34 30	Ref. Mon. S-7----- T. P. 8----- Ref. Mon. C-6----- T. P. 6-----	201.3 345.4 217.5 397.7	T. P. 24-----	47 07 54.63 67 53 48.34	55 14 50 126 09 40 235 14 50 314 15 30	Ref. Mon. S-18----- T. P. 25----- Ref. Mon. C-17----- T. P. 23-----	234.2 263.8 88.5 198.6
T. P. 8-----	47 05 06.36 67 49 52.38	116 59 00 128 13 00 275 26 20 308 13 00	T. P. 9----- Ref. Mon. C-7----- T. P. 7----- Ref. Mon. S-7-----	659.7 618.3 345.4 215.8	T. P. 25-----	47 07 59.67 67 53 58.45	137 04 10 175 55 40 306 09 30 355 55 40	T. P. 26----- Ref. Mon. C-18----- T. P. 24----- Ref. Mon. S-18-----	512.0 472.9 263.8 289.9
T. P. 9-----	47 05 16.06 67 50 20.25	50 50 20 128 29 10 230 50 20 296 58 40	Ref. Mon. S-8----- T. P. 10----- Ref. Mon. C-7----- T. P. 8-----	315.3 1,007.4 131.7 659.7	T. P. 26-----	47 08 11.81 67 54 15.00	1 18 30 159 59 00 181 18 30 317 04 00	Ref. Mon. S-19----- T. P. 27----- Ref. Mon. C-19----- T. P. 25-----	214.4 902.9 607.2 512.0
T. P. 10-----	47 05 36.36 67 50 57.64	71 24 40 116 10 10 251 24 40 308 28 40	Ref. Mon. 119----- T. P. 11----- Ref. Mon. C-8----- T. P. 9-----	162.9 894.3 258.0 1,007.4	T. P. 27-----	47 08 39.28 67 54 29.67	126 46 00 153 28 50 306 46 00 339 58 50	Ref. Mon. S-21----- T. P. 28----- Ref. Mon. C-19----- T. P. 26-----	636.0 385.5 403.1 902.9
T. P. 11-----	47 05 49.13 67 51 35.70	120 40 20 151 58 20 296 09 40 331 58 20	T. P. 12----- Ref. Mon. C-9----- T. P. 10----- Ref. Mon. S-9-----	805.2 448.1 894.3 883.3	T. P. 28-----	47 08 50.45 67 54 37.84	131 48 30 167 34 40 333 28 40 347 34 40	T. P. 29----- Ref. Mon. C-20----- T. P. 27----- Ref. Mon. S-20-----	260.9 305.6 385.5 598.3
T. P. 12-----	47 06 02.43 67 52 08.54	48 53 30 98 06 40 228 53 30 300 40 00	Ref. Mon. S-11----- T. P. 13----- Ref. Mon. C-10----- T. P. 11-----	269.5 494.9 128.3 805.2	T. P. 29-----	47 08 56.09 67 54 47.07	45 57 00 115 26 10 225 57 00 311 48 20	Ref. Mon. S-21----- T. P. 30----- Ref. Mon. C-20----- T. P. 28-----	198.8 747.8 179.1 260.9
T. P. 13-----	47 06 04.69 67 52 31.78	114 10 30 130 43 20 278 06 20 310 43 20	T. P. 14----- Ref. Mon. C-11----- T. P. 12----- Ref. Mon. S-11-----	408.4 390.9 494.9 378.6	T. P. 30-----	47 09 06.49 67 55 19.12	103 44 10 128 56 00 283 44 10 295 25 40	Ref. Mon. S-22----- T. P. 31----- Ref. Mon. C-20----- T. P. 29-----	405.0 582.1 827.7 747.8
T. P. 14-----	47 06 10.10 67 52 49.45	41 00 10 128 26 00 221 00 10 294 10 20	Ref. Mon. S-12----- T. P. 15----- Ref. Mon. C-11----- T. P. 13-----	273.8 309.0 116.3 408.4	T. P. 31-----	47 09 18.33 67 55 40.62	142 54 10 167 34 20 308 55 40 347 34 20	T. P. 32----- Ref. Mon. C-22----- T. P. 30----- Ref. Mon. S-22-----	174.6 431.6 582.1 276.1
T. P. 15-----	47 06 16.32 67 53 00.93	48 08 20 146 28 50 228 08 20 308 25 50	Ref. Mon. S-13----- T. P. 16----- Ref. Mon. C-12----- T. P. 14-----	291.6 721.6 150.9 309.0	T. P. 32-----	47 09 22.84 67 55 45.62	89 05 30 157 04 30 269 05 30 322 54 00	Ref. Mon. S-23----- T. P. 33----- Ref. Mon. C-21----- T. P. 31-----	184.5 636.1 480.5 174.6
T. P. 16-----	47 06 35.80 67 53 19.83	65 17 10 167 34 40 245 17 10 326 28 30	Ref. Mon. S-15----- T. P. 17----- Ref. Mon. C-14----- T. P. 15-----	150.5 491.1 142.8 721.6	T. P. 33-----	47 09 41.81 67 55 57.38	136 15 10 173 51 40 337 04 20 353 51 40	T. P. 34----- Ref. Mon. C-23----- T. P. 32----- Ref. Mon. S-23-----	327.2 346.2 636.1 592.1
T. P. 17-----	47 06 51.33 67 53 24.84	150 43 40 182 40 00 330 43 40 347 34 30	Ref. Mon. S-16----- T. P. 18----- Ref. Mon. C-14----- T. P. 16-----	230.2 602.9 481.4 491.1	T. P. 34-----	47 09 49.47 67 56 08.13	60 20 10 151 01 50 240 20 10 316 15 00	Ref. Mon. S-24----- T. P. 35----- Ref. Mon. C-23----- T. P. 33-----	257.6 311.1 217.8 327.2



## BOUNDARY TURNING POINTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 35.....	47 09 58.28 67 56 15.28	115 48 20 165 02 40 295 48 20 331 01 40	Ref. Mon. S-25..... T. P. 36..... Ref. Mon. C-23..... T. P. 34.....	235.3 560.7 377.6 311.1	T. P. 54.....	47 14 36.43 68 02 02.50	62 59 10 129 03 00 242 59 10 301 32 50	Ref. Mon. S-39..... T. P. 55..... Ref. Mon. C-37..... T. P. 53.....	250.2 559.5 460.9 717.9
T. P. 36.....	47 10 15.82 67 56 22.15	69 07 00 149 20 30 249 07 00 345 02 40	Ref. Mon. S-26..... T. P. 37..... Ref. Mon. C-24..... T. P. 35.....	225.3 662.0 122.7 560.7	T. P. 55.....	47 14 47.84 68 02 23.16	121 37 40 155 34 50 309 02 50 335 34 50	T. P. 56..... Ref. Mon. C-38..... T. P. 54..... Ref. Mon. S-39.....	1,157.8 608.7 559.5 511.9
T. P. 37.....	47 10 34.26 67 56 38.19	38 14 10 144 21 10 218 14 10 329 20 20	Ref. Mon. S-27..... T. P. 38..... Ref. Mon. C-25..... T. P. 36.....	348.2 238.5 144.8 662.0	T. P. 56.....	47 15 07.50 68 03 10.04	123 51 20 158 47 10 301 37 10 338 47 10	T. P. 57..... Ref. Mon. 128..... T. P. 55..... Ref. Mon. S-40.....	643.6 242.8 1,157.8 398.8
T. P. 38.....	47 10 40.54 67 56 44.79	50 27 30 149 29 50 230 27 30 324 21 00	Ref. Mon. S-28..... T. P. 39..... Ref. Mon. C-26..... T. P. 37.....	286.5 495.7 147.7 238.5	T. P. 57.....	47 15 19.11 68 03 35.46	32 49 50 118 11 30 212 49 50 303 51 00	Ref. Mon. S-41..... T. P. 58..... Ref. Mon. C-39..... T. P. 56.....	172.7 486.9 309.4 643.6
T. P. 39.....	47 10 54.37 67 56 56.74	67 25 10 131 11 50 247 25 10 329 29 40	Ref. Mon. S-29..... T. P. 40..... Ref. Mon. C-27..... T. P. 38.....	276.9 307.0 121.9 495.7	T. P. 58.....	47 15 26.56 68 03 55.87	106 59 40 138 11 20 298 11 20 318 11 20	T. P. 59..... Ref. Mon. C-40..... T. P. 57..... Ref. Mon. S-41.....	724.0 1,282.2 486.9 503.3
T. P. 40.....	47 11 00.92 67 57 07.70	114 20 20 183 26 30 294 20 20 311 11 40	Ref. Mon. S-30..... T. P. 41..... Ref. Mon. C-27..... T. P. 39.....	335.5 739.7 377.1 307.0	T. P. 59.....	47 15 33.41 68 04 28.80	77 07 20 137 25 50 151 54 50 286 59 10	Ref. Mon. S-42..... Ref. Mon. 130..... T. P. 60..... T. P. 58.....	943.2 1,055.5 424.9 724.0
T. P. 41.....	47 11 24.83 67 57 05.59	3 26 40 150 58 10 170 39 20 330 58 10	T. P. 40..... Ref. Mon. 121..... T. P. 42..... Ref. Mon. C-28.....	739.7 624.8 499.1 342.6	T. P. 60.....	47 15 45.55 68 04 38.31	128 03 40 171 41 20 308 03 40 331 54 40	Ref. Mon. 130..... T. P. 61..... Ref. Mon. S-41..... T. P. 59.....	652.8 378.7 1,559.6 424.9
T. P. 42.....	47 11 40.78 67 57 09.44	103 37 40 103 37 40 154 57 00 350 39 20	Ref. Mon. S-31..... Ref. Mon. 121..... T. P. 43..... T. P. 41.....	699.3 228.6 264.7 499.1	T. P. 61.....	47 15 57.68 68 04 40.91	93 27 40 148 28 50 273 27 40 351 41 20	Ref. Mon. 130..... T. P. 62..... Ref. Mon. C-40..... T. P. 60.....	460.1 664.2 92.3 378.7
T. P. 43.....	47 11 48.54 67 57 14.76	30 37 20 138 31 30 210 37 20 334 57 00	Ref. Mon. 121..... T. P. 44..... Ref. Mon. C-29..... T. P. 42.....	216.1 434.5 50.0 264.7	T. P. 62.....	47 16 16.02 68 04 57.43	11 44 50 11 44 50 128 15 20 328 28 40	Ref. Mon. S-42..... Ref. Mon. 130..... T. P. 63..... T. P. 61.....	1,558.7 550.0 998.1 664.2
T. P. 44.....	47 11 59.08 67 57 28.43	34 56 50 34 56 50 123 21 20 318 31 20	Ref. Mon. S-31..... Ref. Mon. 122..... T. P. 45..... T. P. 43.....	488.5 189.4 1,449.8 434.5	T. P. 63.....	47 16 36.03 68 05 34.72	115 53 40 134 12 10 308 14 50 314 12 10	T. P. 64..... Ref. Mon. C-41..... T. P. 62..... Ref. Mon. C-40.....	418.6 668.5 998.1 1,706.4
T. P. 45.....	47 12 24.89 67 58 25.97	105 55 50 113 30 10 293 30 10 303 20 40	T. P. 46..... Ref. Mon. C-32..... Ref. Mon. C-30..... T. P. 44.....	757.5 866.0 383.1 1,449.8	T. P. 64.....	47 16 41.95 68 05 52.64	117 19 10 160 04 50 295 53 30 340 04 50	T. P. 65..... Ref. Mon. C-41..... T. P. 63..... Ref. Mon. S-42.....	433.5 301.3 418.6 2,474.9
T. P. 46.....	47 12 31.62 67 59 00.58	100 54 30 154 25 20 285 55 20 334 25 20	T. P. 47..... Ref. Mon. C-32..... T. P. 45..... Ref. Mon. S-33.....	349.0 152.4 757.5 721.7	T. P. 65.....	47 16 48.39 68 06 10.96	73 22 30 128 50 20 253 22 30 297 18 50	Ref. Mon. S-43..... T. P. 66..... Ref. Mon. C-41..... T. P. 64.....	769.3 256.8 294.8 433.5
T. P. 47.....	47 12 33.76 67 59 16.87	75 32 10 115 33 30 255 32 10 280 54 20	Ref. Mon. S-35..... T. P. 48..... Ref. Mon. C-32..... T. P. 46.....	397.7 198.3 286.0 349.0	T. P. 66.....	47 16 53.61 68 06 20.48	99 02 00 118 57 50 279 02 00 308 50 20	Ref. Mon. S-44..... T. P. 67..... Ref. Mon. C-41..... T. P. 65.....	1,623.1 1,376.6 488.6 256.8
T. P. 48.....	47 12 36.53 67 59 25.37	140 54 10 160 09 30 295 33 20 340 09 30	T. P. 49..... Ref. Mon. C-33..... T. P. 47..... Ref. Mon. S-34.....	1,016.3 354.2 198.3 441.3	T. P. 67.....	47 17 15.19 68 07 17.80	44 03 20 148 59 50 224 03 20 298 57 10	Ref. Mon. S-44..... T. P. 68..... Ref. Mon. C-42..... T. P. 66.....	573.1 318.4 216.0 1,376.6
T. P. 49.....	47 13 02.07 67 59 55.83	31 54 10 149 28 30 211 54 10 320 53 50	Ref. Mon. 124..... T. P. 50..... Ref. Mon. C-34..... T. P. 48.....	133.2 1,296.4 149.1 1,016.3	T. P. 68.....	47 17 24.02 68 07 25.60	110 31 50 144 01 40 290 31 50 328 59 40	Ref. Mon. 134..... T. P. 69..... Ref. Mon. C-42..... T. P. 67.....	323.3 565.6 335.5 318.4
T. P. 50.....	47 13 38.23 68 00 27.13	123 08 40 139 22 30 303 08 40 329 28 00	Ref. Mon. S-38..... T. P. 51..... Ref. Mon. C-35..... T. P. 49.....	1,394.4 1,138.5 306.5 1,296.4	T. P. 69.....	47 17 38.84 68 07 41.41	106 05 10 324 01 30 355 06 40 355 06 40	T. P. 70..... T. P. 68..... Ref. Mon. 134..... Ref. Mon. S-44.....	661.0 565.6 345.6 1,146.4
T. P. 51.....	47 14 06.20 68 01 02.37	76 34 40 149 59 30 256 34 40 319 22 00	Ref. Mon. S-38..... T. P. 52..... Ref. Mon. C-36..... T. P. 50.....	438.2 457.7 160.4 1,138.5	T. P. 70.....	47 17 44.77 68 08 11.64	136 58 30 151 03 30 286 04 50 331 03 30	T. P. 71..... Ref. Mon. C-43..... T. P. 69..... Ref. Mon. S-44.....	594.3 663.1 661.0 1,514.6
T. P. 52.....	47 14 19.04 68 01 13.25	21 36 50 110 50 50 313 00 40 329 59 20	Ref. Mon. S-38..... T. P. 53..... Ref. Mon. C-36..... T. P. 51.....	535.7 453.8 526.4 457.7	T. P. 71.....	47 17 58.84 68 08 30.94	30 06 50 147 49 00 210 06 50 316 58 20	Ref. Mon. S-45..... T. P. 72..... Ref. Mon. C-43..... T. P. 70.....	619.4 801.6 168.6 594.3
T. P. 53.....	47 14 24.27 68 01 33.41	121 33 10 161 01 20 290 50 30 341 01 20	T. P. 54..... Ref. Mon. C-37..... T. P. 52..... Ref. Mon. S-38.....	717.9 618.6 453.8 697.4	T. P. 72.....	47 18 20.81 68 08 51.27	137 59 20 174 31 40 327 48 40 354 31 40	T. P. 73..... Ref. Mon. C-44..... T. P. 71..... Ref. Mon. S-45.....	600.2 974.5 801.6 1,219.8

## BOUNDARY TURNING POINTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 73-----	47 18 35.25 68 09 10.39	30 30 00 164 01 50 210 30 00 317 59 10	Ref. Mon. S-46--- T. P. 74----- Ref. Mon. C-44--- T. P. 72-----	811.6 427.5 608.3 600.2	T. P. 92-----	47 21 17.63 68 14 19.30	68 29 40 153 56 00 257 52 20 333 56 00	T. P. 93----- Ref. Mon. C-51--- T. P. 91----- Ref. Mon. S-52---	807.8 681.3 274.6 1,169.6
T. P. 74-----	47 18 48.56 68 09 15.99	14 50 50 191 04 30 194 50 50 344 01 50	Ref. Mon. S-46--- T. P. 75----- Ref. Mon. C-45--- T. P. 73-----	1,148.7 195.7 1,099.5 427.5	T. P. 93-----	47 21 08.04 68 14 55.12	26 27 50 90 30 20 206 27 50 248 29 20	Ref. Mon. S-53--- T. P. 94----- Ref. Mon. C-51--- T. P. 92-----	196.5 1,279.3 1,014.5 807.8
T. P. 75-----	47 18 54.78 68 09 14.20	11 04 30 101 28 50 185 14 00 281 28 50	T. P. 74----- Ref. Mon. S-47--- T. P. 76----- Ref. Mon. C-44---	195.7 981.0 776.7 396.7	T. P. 94-----	47 21 08.40 68 15 56.07	39 52 50 118 38 50 219 52 50 270 29 30	Ref. Mon. S-54--- T. P. 95----- Ref. Mon. C-52--- T. P. 93-----	656.3 532.7 956.6 1,279.3
T. P. 76-----	47 19 19.83 68 09 10.83	5 14 00 60 44 50 153 01 00 240 44 50	T. P. 75----- Ref. Mon. S-47--- T. P. 77----- Ref. Mon. C-45---	776.7 1,183.1 390.9 198.7	T. P. 95-----	47 21 16.67 68 16 18.35	66 06 20 128 25 00 246 06 20 298 38 40	Ref. Mon. S-55--- T. P. 96----- Ref. Mon. C-52--- T. P. 94-----	1,470.4 914.0 1,182.1 532.7
T. P. 77-----	47 19 31.10 68 09 19.27	42 41 50 118 50 50 305 36 40 333 01 00	Ref. Mon. S-47--- T. P. 78----- Ref. Mon. C-45--- T. P. 76-----	1,260.6 458.2 431.4 390.9	T. P. 96-----	47 21 35.06 68 16 52.47	28 21 50 103 01 30 208 21 50 308 24 40	Ref. Mon. S-55--- T. P. 97----- Ref. Mon. C-53--- T. P. 95-----	1,322.3 327.6 127.1 914.0
T. P. 78-----	47 19 38.26 68 09 38.39	21 33 40 101 01 50 298 50 30 302 07 30	Ref. Mon. S-47--- T. P. 79----- T. P. 77----- Ref. Mon. C-45---	1,233.9 764.2 458.2 888.0	T. P. 97-----	47 21 37.45 68 17 07.68	84 16 50 84 16 50 264 16 50 283 01 20	Ref. Mon. C-54--- T. P. 98----- Ref. Mon. C-53--- T. P. 96-----	1,225.2 421.0 381.5 327.6
T. P. 79-----	47 19 43.00 68 10 14.10	95 11 10 112 22 10 281 01 30 292 22 10	T. P. 80----- Ref. Mon. C-46--- T. P. 78----- Ref. Mon. C-45---	465.8 488.1 764.2 1,624.4	T. P. 98-----	47 21 36.09 68 17 27.65	66 14 10 84 16 40 264 16 40 264 16 40	T. P. 99----- Ref. Mon. C-54--- Ref. Mon. C-53--- T. P. 97-----	259.5 804.2 802.5 421.0
T. P. 80-----	47 19 44.36 68 10 36.19	4 58 20 117 59 50 184 58 20 275 11 00	Ref. Mon. S-48--- T. P. 81----- Ref. Mon. C-46--- T. P. 79-----	507.4 315.8 144.2 465.8	T. P. 99-----	47 21 32.71 68 17 38.96	53 55 40 79 53 40 246 14 00 259 53 40	T. P. 100----- Ref. Mon. 138--- T. P. 98----- Ref. Mon. C-53---	566.6 694.1 259.5 1,052.3
T. P. 81-----	47 19 49.16 68 10 49.47	20 24 40 120 56 00 200 24 40 297 59 40	Ref. Mon. S-49--- T. P. 82----- Ref. Mon. C-47--- T. P. 80-----	337.7 1,992.7 130.7 315.8	T. P. 100-----	47 21 21.90 68 18 00.78	73 51 30 133 13 40 233 55 20 313 13 40	T. P. 101----- Ref. Mon. 138--- T. P. 99----- Ref. Mon. S-55---	292.1 309.3 566.6 1,105.5
T. P. 82-----	47 20 22.32 68 12 10.89	93 16 40 163 52 50 300 55 00 343 52 50	T. P. 83----- Ref. Mon. C-49--- T. P. 81----- Ref. Mon. S-50---	375.7 419.9 1,992.7 525.8	T. P. 101-----	47 21 19.27 68 18 14.15	21 48 10 90 50 10 201 48 10 253 51 20	Ref. Mon. S-56--- T. P. 102----- Ref. Mon. C-54--- T. P. 100-----	463.0 145.7 472.9 292.1
T. P. 83-----	47 20 23.02 68 12 28.76	34 05 30 74 24 20 214 05 30 273 16 20	Ref. Mon. S-51--- T. P. 84----- Ref. Mon. C-49--- T. P. 82-----	180.5 317.2 461.2 375.7	T. P. 102-----	47 21 19.34 68 18 21.09	3 28 30 103 48 10 183 28 30 270 50 10	Ref. Mon. S-56--- T. P. 103----- Ref. Mon. 136--- T. P. 101-----	432.8 459.3 144.5 145.7
T. P. 84-----	47 20 20.26 68 12 43.31	109 29 10 230 21 40 254 24 10 287 26 30	T. P. 85----- Ref. Mon. C-49--- T. P. 83----- Ref. Mon. S-51---	254.5 732.4 317.2 214.2	T. P. 103-----	47 21 22.89 68 18 42.34	112 34 50 142 13 00 283 47 50 322 13 00	T. P. 104----- Ref. Mon. C-55--- T. P. 102----- Ref. Mon. S-56---	922.1 821.5 459.3 685.2
T. P. 85-----	47 20 23.00 68 12 54.74	121 32 40 244 33 40 288 33 00 289 29 00	T. P. 86----- Ref. Mon. C-49--- Ref. Mon. S-51--- T. P. 84-----	425.8 890.2 468.6 254.5	T. P. 104-----	47 21 34.35 68 19 22.92	49 41 50 100 05 50 229 41 50 292 34 20	Ref. Mon. S-58--- T. P. 105----- Ref. Mon. C-55--- T. P. 103-----	1,016.4 406.9 456.4 922.1
T. P. 86-----	47 20 30.22 68 13 12.03	114 43 50 136 04 50 294 43 50 301 32 30	Ref. Mon. S-52--- T. P. 87----- Ref. Mon. S-51--- T. P. 85-----	989.0 477.6 888.7 425.8	T. P. 105-----	47 21 36.66 68 19 42.01	88 13 10 164 36 30 280 05 40 344 36 30	T. P. 106----- Ref. Mon. C-56--- T. P. 104----- Ref. Mon. S-57---	342.2 192.5 406.9 805.3
T. P. 87-----	47 20 41.35 68 13 27.81	97 00 40 173 02 20 277 00 40 316 04 40	Ref. Mon. S-52--- T. P. 88----- Ref. Mon. C-49--- T. P. 86-----	571.3 621.0 1,509.3 477.6	T. P. 106-----	47 21 36.32 68 19 58.31	55 59 40 84 06 10 235 59 40 268 13 00	Ref. Mon. S-59--- T. P. 107----- Ref. Mon. C-56--- T. P. 105-----	1,186.8 258.3 350.9 342.2
T. P. 88-----	47 21 01.31 68 13 31.39	41 58 30 149 32 10 221 58 30 353 02 20	Ref. Mon. S-52--- T. P. 89----- Ref. Mon. C-50--- T. P. 87-----	735.3 104.0 126.5 621.0	T. P. 107-----	47 21 35.45 68 20 10.56	48 45 30 73 38 50 264 06 00 342 00 20	Ref. Mon. S-59--- T. P. 108----- T. P. 106----- Ref. Mon. S-58---	966.6 614.6 258.3 727.1
T. P. 89-----	47 21 04.22 68 13 33.90	88 10 00 141 21 20 268 10 00 329 32 10	Ref. Mon. S-53--- T. P. 90----- Ref. Mon. C-50--- T. P. 88-----	1,793.1 327.7 137.4 104.0	T. P. 108-----	47 21 29.85 68 20 38.65	85 24 30 122 28 40 253 38 30 302 28 40	T. P. 109----- Ref. Mon. C-57--- T. P. 107----- Ref. Mon. S-58---	329.4 558.1 614.6 965.4
T. P. 90-----	47 21 12.51 68 13 43.65	114 13 40 126 20 10 306 20 10 321 21 20	T. P. 91----- Ref. Mon. C-51--- Ref. Mon. C-50--- T. P. 89-----	526.1 1,500.3 424.5 327.7	T. P. 109-----	47 21 29.00 68 20 54.30	78 26 00 156 23 40 265 24 20 336 23 40	T. P. 110----- Ref. Mon. C-57--- T. P. 108----- Ref. Mon. S-59---	316.4 355.8 329.4 477.8
T. P. 91-----	47 21 19.50 68 14 06.51	64 26 40 77 52 30 294 13 20 347 31 00	Ref. Mon. S-53--- T. P. 92----- T. P. 90----- Ref. Mon. S-52---	1,227.8 274.6 526.1 1,135.2	T. P. 110-----	47 21 26.94 68 21 09.08	70 32 40 126 44 50 258 25 50 306 44 50	T. P. 111----- Ref. Mon. C-58--- T. P. 109----- Ref. Mon. S-59---	903.9 163.1 316.4 625.7



## BOUNDARY TURNING POINTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 111.....	47 21 17.19 68 21 49.69	51 52 50 100 34 00 250 32 10 280 34 00	T. P. 112..... Ref. Mon. C-59 Ref. Mon. S-60	562.0 646.2 903.9 837.3	T. P. 130.....	47 17 10.98 68 22 56.17	87 09 20 130 40 50 246 27 20 310 40 50	T. P. 131..... Ref. Mon. C-66 T. P. 129..... Ref. Mon. 139.....	633.9 1,672.8 308.7 119.7
T. P. 112.....	47 21 05.95 68 22 10.76	42 05 20 157 27 30 231 52 30 337 27 30	T. P. 113..... Ref. Mon. C-59 T. P. 111..... Ref. Mon. S-61	326.6 503.9 562.0 292.2	T. P. 131.....	47 17 09.96 68 23 26.30	68 03 00 68 03 00 104 14 20 267 09 00	Ref. Mon. 142..... Ref. Mon. 140..... T. P. 132..... T. P. 130.....	620.4 314.7 360.1 633.9
T. P. 113.....	47 20 58.10 68 22 21.18	2 04 40 34 22 20 182 04 40 222 05 10	Ref. Mon. S-62 T. P. 114..... Ref. Mon. C-59 T. P. 112.....	739.0 782.0 708.2 326.6	T. P. 132.....	47 17 12.83 68 23 42.91	92 01 20 164 29 50 284 14 10 344 29 50	T. P. 133..... Ref. Mon. C-66 T. P. 131..... Ref. Mon. 140.....	648.5 1,072.1 360.1 214.0
T. P. 114.....	47 20 37.21 68 22 42.21	22 55 10 102 39 00 214 22 10 282 39 00	T. P. 115..... Ref. Mon. C-60 T. P. 113..... Ref. Mon. S-62	471.5 463.3 782.0 425.0	T. P. 133.....	47 17 13.57 68 24 13.75	102 40 00 129 08 50 272 01 00 309 08 50	T. P. 134..... Ref. Mon. C-67 T. P. 132..... Ref. Mon. 142.....	519.4 682.5 648.5 543.9
T. P. 115.....	47 20 23.15 68 22 50.96	6 41 20 153 22 50 202 55 00 333 22 50	T. P. 116..... Ref. Mon. C-60 T. P. 114..... Ref. Mon. S-63	883.3 599.2 471.5 609.0	T. P. 134.....	47 17 17.26 68 24 37.87	81 13 00 175 55 50 282 39 40 355 55 50	T. P. 135..... Ref. Mon. C-67 T. P. 133..... Ref. Mon. S-71.....	401.8 317.8 519.4 704.2
T. P. 116.....	47 19 54.74 68 22 55.87	20 38 00 48 27 40 186 41 20 228 27 40	T. P. 117..... Ref. Mon. C-62 T. P. 115..... Ref. Mon. S-63	360.2 370.2 883.3 502.0	T. P. 135.....	47 17 15.27 68 24 56.77	53 20 10 224 42 30 261 12 50 325 06 10	T. P. 136..... Ref. Mon. C-67 T. P. 134..... Ref. Mon. S-71.....	1,009.1 532.4 401.8 781.6
T. P. 117.....	47 19 43.82 68 23 01.91	12 34 40 121 22 10 200 38 00 301 22 10	T. P. 118..... Ref. Mon. C-62 T. P. 116..... Ref. Mon. S-64	528.4 175.9 360.2 313.7	T. P. 136.....	47 16 55.76 68 25 35.28	50 21 00 74 07 00 230 21 00 233 19 40	Ref. Mon. S-72 T. P. 137..... Ref. Mon. C-67 T. P. 135.....	737.3 315.5 1,537.5 1,009.1
T. P. 118.....	47 19 27.12 68 23 07.39	104 09 30 192 34 40 284 09 30 357 22 10	Ref. Mon. C-63 T. P. 117..... Ref. Mon. S-65 T. P. 119.....	229.1 528.4 466.4 306.7	T. P. 137.....	47 16 52.96 68 25 49.72	34 31 10 108 45 50 153 51 50 254 06 50	Ref. Mon. S-72 T. P. 138..... Ref. Mon. C-68 T. P. 136.....	466.2 355.1 1,155.4 315.5
T. P. 119.....	47 19 17.20 68 23 06.72	29 14 30 177 22 10 209 14 30 338 22 30	Ref. Mon. C-64 T. P. 118..... Ref. Mon. S-64 T. P. 120.....	907.3 306.7 755.1 221.3	T. P. 138.....	47 16 55.69 68 26 06.13	109 17 10 170 13 30 283 45 40 350 13 30	T. P. 139..... Ref. Mon. C-68 T. P. 137..... Ref. Mon. S-72.....	556.4 966.8 355.1 475.5
T. P. 120.....	47 19 10.54 68 23 02.83	41 51 00 158 22 30 221 51 00 349 35 20	Ref. Mon. C-64 T. P. 119..... Ref. Mon. S-65 T. P. 121.....	786.6 221.3 534.2 1,040.3	T. P. 139.....	47 17 01.64 68 26 31.12	66 14 20 137 06 40 289 17 00 317 06 40	T. P. 140..... Ref. Mon. C-69 T. P. 138..... Ref. Mon. S-72.....	409.5 1,862.2 556.4 890.3
T. P. 121.....	47 18 37.41 68 22 53.88	103 16 30 169 35 30 283 16 30 357 45 20	Ref. Mon. C-65 T. P. 120..... Ref. Mon. S-66 T. P. 122.....	793.9 1,040.3 311.1 228.0	T. P. 140.....	47 16 56.30 68 26 48.95	84 03 20 116 25 10 246 14 00 296 25 10	T. P. 141..... Ref. Mon. 144..... T. P. 139..... Ref. Mon. S-72.....	190.8 1,019.7 409.5 1,095.1
T. P. 122.....	47 18 30.03 68 22 53.46	30 26 30 117 41 10 177 45 20 297 41 10	T. P. 123..... Ref. Mon. C-65 T. P. 121..... Ref. Mon. S-67.....	588.6 882.7 228.0 220.3	T. P. 141.....	47 16 55.66 68 26 57.98	101 07 50 134 30 30 224 08 10 264 03 10	T. P. 142..... Ref. Mon. 143..... Ref. Mon. C-68 T. P. 140.....	301.5 536.6 1,328.9 190.8
T. P. 123.....	47 18 13.60 68 23 07.65	50 36 20 210 26 20 230 36 20 346 19 20	Ref. Mon. C-66 T. P. 122..... Ref. Mon. S-67 T. P. 124.....	1,329.4 588.6 638.3 286.9	T. P. 142.....	47 16 57.54 68 27 12.06	114 55 10 164 43 20 164 43 20 281 07 40	T. P. 143..... Ref. Mon. C-69 Ref. Mon. 143..... T. P. 141.....	484.5 1,545.5 329.6 301.5
T. P. 124.....	47 18 04.58 68 23 04.42	166 19 30 211 53 10 281 11 00 315 55 10	T. P. 123..... Ref. Mon. S-67 Ref. Mon. S-68 T. P. 125.....	286.9 805.4 736.6 353.1	T. P. 143.....	47 17 04.15 68 27 32.97	3 11 10 155 56 50 183 11 10 294 54 50	Ref. Mon. S-73..... T. P. 144..... Ref. Mon. 144..... T. P. 142.....	125.8 1,127.9 211.6 484.5
T. P. 125.....	47 17 56.37 68 22 52.74	76 55 40 135 55 20 256 55 40 321 26 40	Ref. Mon. C-66 T. P. 124..... Ref. Mon. S-68 T. P. 126.....	1,376.3 353.1 489.7 524.5	T. P. 144.....	47 17 37.50 68 27 54.85	62 25 10 143 43 20 242 25 10 335 56 30	Ref. Mon. S-74..... T. P. 145..... Ref. Mon. C-69 T. P. 143.....	645.4 134.8 554.9 1,127.9
T. P. 126.....	47 17 43.08 68 22 37.18	16 04 50 141 27 00 196 04 50 345 23 00	Ref. Mon. 139 T. P. 125..... Ref. Mon. S-68 T. P. 127.....	1,113.1 524.5 542.1 478.9	T. P. 145.....	47 17 41.02 68 27 58.64	75 27 30 122 38 10 255 27 30 323 43 20	Ref. Mon. S-75..... T. P. 146..... Ref. Mon. C-69 T. P. 144.....	1,623.0 432.4 590.5 134.8
T. P. 127.....	47 17 28.08 68 22 31.43	16 36 50 35 18 10 107 27 20 165 23 00	T. P. 128..... Ref. Mon. 139 Ref. Mon. C-66 T. P. 126.....	237.8 742.7 1,874.8 478.9	T. P. 146.....	47 17 48.57 68 28 15.97	11 19 20 97 56 00 191 19 20 302 37 50	Ref. Mon. S-74..... T. P. 147..... Ref. Mon. C-70 T. P. 145.....	653.3 350.6 396.9 432.4
T. P. 128.....	47 17 20.70 68 22 34.66	43 40 40 43 40 40 43 40 40 196 36 50	T. P. 129..... Ref. Mon. S-70 Ref. Mon. 139 T. P. 127.....	244.6 1,921.7 523.0 237.8	T. P. 147.....	47 17 50.13 68 28 32.50	51 17 10 69 56 30 231 17 10 277 55 50	Ref. Mon. S-75..... T. P. 148..... Ref. Mon. C-70 T. P. 146.....	1,101.7 723.7 544.9 350.6
T. P. 129.....	47 17 14.97 68 22 42.70	43 40 40 43 40 40 66 27 30 223 40 40	Ref. Mon. S-70 Ref. Mon. 139 T. P. 130..... T. P. 128.....	1,677.1 278.4 308.7 244.6	T. P. 148.....	47 17 42.10 68 29 04.85	22 11 20 75 54 10 202 11 20 249 56 00	Ref. Mon. S-75..... T. P. 149..... Ref. Mon. 147 T. P. 147.....	476.1 479.4 135.7 723.7

## BOUNDARY TURNING POINTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 149.....	47 17 38.31 68 29 26.98	88 01 30 138 39 00 255 54 00 318 39 00	T. P. 150..... Ref. Mon. C-72... T. P. 148..... Ref. Mon. S-75....	324.5 1,474.9 479.4 431.7	T. P. 168.....	47 16 12.98 68 35 54.03	12 20 40 128 51 50 222 18 30 308 51 50	T. P. 169..... Ref. Mon. C-81... T. P. 167..... Ref. Mon. S-87....	186.5 806.7 597.9 483.4
T. P. 150.....	47 17 37.95 68 29 42.42	99 34 30 117 10 20 268 01 20 297 10 20	T. P. 151..... Ref. Mon. 151-A... T. P. 149..... Ref. Mon. S-75....	169.0 896.1 324.5 685.1	T. P. 169.....	47 16 07.09 68 35 55.93	139 29 00 192 20 40 319 29 00 343 45 40	Ref. Mon. C-81... T. P. 168..... Ref. Mon. S-88... T. P. 170.....	905.5 186.5 1,237.3 190.7
T. P. 151.....	47 17 38.86 68 29 50.35	77 21 40 113 40 00 257 21 40 279 34 20	Ref. Mon. S-76.... T. P. 152..... Ref. Mon. 147.... T. P. 150.....	304.0 561.2 1,032.3 169.0	T. P. 170.....	47 16 01.16 68 35 53.39	143 38 20 163 45 40 260 18 10 333 48 20	Ref. Mon. C-81... T. P. 169..... Ref. Mon. S-87... T. P. 171.....	1,082.2 190.7 368.2 716.4
T. P. 152.....	47 17 46.15 68 30 14.82	97 40 40 143 18 30 293 39 40 323 18 30	T. P. 153..... Ref. Mon. 151-A... T. P. 151..... Ref. Mon. S-76....	367.6 194.8 561.2 363.9	T. P. 171.....	47 15 40.34 68 35 38.34	3 47 40 153 48 30 183 47 40 284 46 20	T. P. 172..... T. P. 170..... Ref. Mon. S-87... Ref. Mon. S-88....	258.0 716.4 706.4 448.8
T. P. 153.....	47 17 47.74 68 30 32.16	86 09 30 179 34 20 277 40 30 359 34 20	T. P. 154..... Ref. Mon. 153.... T. P. 152..... Ref. Mon. S-77....	644.6 131.7 367.6 245.9	T. P. 172.....	47 15 32.00 68 35 39.15	33 16 50 183 47 40 183 47 40 252 24 30	T. P. 173..... Ref. Mon. S-87... T. P. 171..... Ref. Mon. S-88....	346.6 964.4 258.0 473.2
T. P. 154.....	47 17 46.34 68 31 02.77	72 01 20 152 55 40 266 09 00 332 55 40	T. P. 155..... Ref. Mon. C-73... T. P. 153..... Ref. Mon. S-78....	571.2 477.9 644.6 237.8	T. P. 173.....	47 15 22.62 68 35 48.20	55 59 00 55 59 00 213 16 40 235 59 00	T. P. 174..... Ref. Mon. C-83... T. P. 172..... Ref. Mon. S-88....	333.4 1,340.6 346.6 773.6
T. P. 155.....	47 17 40.63 68 31 28.63	59 58 20 127 41 50 252 01 00 307 41 50	T. P. 156..... Ref. Mon. C-74... T. P. 154..... Ref. Mon. S-79....	549.3 319.9 571.2 263.6	T. P. 174.....	47 15 16.58 68 36 01.34	32 41 00 55 58 50 235 58 50 235 58 50	T. P. 175..... Ref. Mon. C-83... Ref. Mon. S-88... T. P. 173.....	685.8 1,007.2 1,107.0 333.4
T. P. 156.....	47 17 31.73 68 31 51.27	40 48 00 80 33 40 239 58 00 260 33 40	T. P. 157..... Ref. Mon. C-75... T. P. 155..... Ref. Mon. S-79....	990.2 745.1 549.3 693.5	T. P. 175.....	47 14 57.89 68 36 18.95	40 42 10 178 08 00 212 40 50 358 08 00	T. P. 176..... Ref. Mon. C-82... T. P. 174..... Ref. Mon. S-90....	339.0 543.7 685.8 521.7
T. P. 157.....	47 17 07.46 68 32 22.06	54 41 00 172 00 30 220 47 40 352 00 30	T. P. 158..... Ref. Mon. C-75... T. P. 156..... Ref. Mon. S-81....	187.7 633.5 990.2 329.5	T. P. 176.....	47 14 49.57 68 36 29.46	62 02 50 138 00 00 220 42 10 318 00 00	T. P. 177..... Ref. Mon. C-83... T. P. 175..... Ref. Mon. S-90....	856.4 363.9 339.0 355.8
T. P. 158.....	47 17 03.95 68 32 29.35	70 28 00 137 34 40 234 40 50 317 34 40	T. P. 159..... Ref. Mon. C-76... T. P. 157..... Ref. Mon. S-81....	721.0 611.3 187.7 295.0	T. P. 177.....	47 14 36.57 68 37 05.43	77 29 10 158 45 10 242 02 30 338 45 10	T. P. 178..... Ref. Mon. C-84... T. P. 176..... Ref. Mon. S-91....	616.8 625.3 856.4 526.4
T. P. 159.....	47 16 56.14 68 33 01.68	21 05 30 94 29 50 201 05 30 250 27 30	Ref. Mon. S-82... T. P. 160..... Ref. Mon. C-76... T. P. 158.....	323.9 299.7 742.1 721.0	T. P. 178.....	47 14 32.24 68 37 34.06	27 39 20 88 20 40 207 39 20 257 28 50	Ref. Mon. S-92... T. P. 179..... Ref. Mon. C-84... T. P. 177.....	514.3 245.9 808.9 616.8
T. P. 160.....	47 16 56.90 68 33 15.89	106 06 00 150 46 30 274 29 40 330 46 30	T. P. 161..... Ref. Mon. C-77... T. P. 159..... Ref. Mon. S-82....	328.5 754.9 299.7 373.2	T. P. 179.....	47 14 32.01 68 37 45.75	93 01 20 179 05 50 268 20 30 359 05 50	T. P. 180..... Ref. Mon. C-85... T. P. 178..... Ref. Mon. S-92....	485.2 297.2 245.9 448.5
T. P. 161.....	47 16 59.85 68 33 30.91	56 44 40 112 39 50 236 44 40 286 05 50	Ref. Mon. S-83... T. P. 162..... Ref. Mon. C-76... T. P. 160.....	493.7 1,148.0 1,053.9 328.5	T. P. 180.....	47 14 32.84 68 38 08.78	65 16 40 133 57 10 273 01 00 313 57 10	T. P. 181..... Ref. Mon. C-86... T. P. 179..... Ref. Mon. S-92....	429.8 289.3 485.2 682.9
T. P. 162.....	47 17 14.17 68 34 21.32	96 53 00 169 46 10 292 39 10 349 46 10	T. P. 163..... Ref. Mon. C-78... T. P. 161..... Ref. Mon. S-84....	433.8 321.3 1,148.0 717.3	T. P. 181.....	47 14 27.02 68 38 27.34	73 11 10 130 06 00 245 16 30 310 06 00	T. P. 182..... Ref. Mon. C-87... T. P. 180..... Ref. Mon. S-93....	475.5 756.1 429.8 503.4
T. P. 163.....	47 17 15.86 68 34 41.82	73 03 30 234 43 50 276 52 40 323 37 40	T. P. 164..... Ref. Mon. C-78... T. P. 162..... Ref. Mon. S-84....	192.5 457.6 433.8 941.2	T. P. 182.....	47 14 22.57 68 38 48.98	87 22 10 168 50 10 253 10 50 348 50 10	T. P. 183..... Ref. Mon. C-87... T. P. 181..... Ref. Mon. S-94....	516.8 636.6 475.5 157.6
T. P. 164.....	47 17 14.04 68 34 50.58	44 13 10 240 07 40 253 03 30 313 23 20	T. P. 165..... Ref. Mon. C-78... T. P. 163..... Ref. Mon. S-84....	1,019.5 643.2 192.5 1,021.5	T. P. 183.....	47 14 21.80 68 39 13.53	31 13 20 75 23 50 211 13 20 267 21 50	Ref. Mon. S-95... T. P. 184..... Ref. Mon. C-87... T. P. 182.....	395.0 181.3 758.1 516.8
T. P. 165.....	47 16 50.38 68 35 24.41	23 04 20 176 17 40 224 12 40 275 52 30	T. P. 166..... Ref. Mon. C-79... T. P. 164..... Ref. Mon. S-85....	209.2 564.3 1,019.5 800.4	T. P. 184.....	47 14 20.32 68 39 21.87	41 23 40 96 42 50 255 23 40 276 42 50	T. P. 185..... Ref. Mon. 155... T. P. 183..... Ref. Mon. S-94....	277.1 807.5 181.3 727.3
T. P. 166.....	47 16 44.14 68 35 28.31	14 54 10 82 49 30 203 04 20 262 49 30	T. P. 167..... Ref. Mon. C-80... T. P. 165..... Ref. Mon. S-85....	537.8 701.9 209.2 885.1	T. P. 185.....	47 14 13.59 68 39 30.58	57 41 30 118 42 30 221 23 40 298 42 30	T. P. 186..... Ref. Mon. 154... T. P. 184..... Ref. Mon. S-95....	180.1 182.5 277.1 175.6
T. P. 167.....	47 16 27.31 68 35 34.89	42 18 40 93 33 20 194 54 00 273 33 20	T. P. 168..... Ref. Mon. C-81... T. P. 166..... Ref. Mon. S-86....	597.9 1,032.6 537.8 557.0	T. P. 186.....	47 14 10.47 68 39 37.82	93 53 00 177 33 40 177 33 40 237 41 20	T. P. 187..... Ref. Mon. C-88... Ref. Mon. 154... T. P. 185.....	254.5 1,023.9 184.1 180.1



## BOUNDARY TURNING POINTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
T. P. 187-----	° ' " 47 14 11.03 68 39 49.89	° ' " 55 52 40 122 28 40 235 52 40 273 52 50	Ref. Mon. S-96.... T. P. 188..... Ref. Mon. 154.... T. P. 186.....	1,024.7 388.1 297.2 254.5	T. P. 206-----	° ' " 47 14 00.47 68 44 19.15	° ' " 57 46 10 118 11 20 227 38 00 298 11 20	T. P. 207..... Ref. Mon. 161.... T. P. 205..... Ref. Mon. 162....	471.3 292.8 379.9 104.1
T. P. 188-----	° ' " 47 14 17.78 68 40 05.46	° ' " 33 37 40 129 30 30 213 37 40 302 28 30	Ref. Mon. S-96.... T. P. 189..... Ref. Mon. 155.... T. P. 187.....	940.6 729.2 207.2 388.1	T. P. 207-----	° ' " 47 13 52.33 68 44 38.10	° ' " 51 15 30 163 13 50 237 45 50 343 13 50	T. P. 208..... Ref. Mon. C-94... T. P. 206..... Ref. Mon. 163....	849.7 1,271.0 471.3 220.4
T. P. 189-----	° ' " 47 14 32.80 68 40 32.21	° ' " 75 00 10 103 24 40 255 00 10 309 30 10	Ref. Mon. S-97.... T. P. 190..... Ref. Mon. C-89... T. P. 188.....	1,802.3 351.6 477.3 729.2	T. P. 208-----	° ' " 47 13 35.11 68 45 09.60	° ' " 60 39 40 118 57 30 231 15 00 298 57 30	T. P. 209..... Ref. Mon. C-95... T. P. 207..... Ref. Mon. S-100...	448.9 971.8 849.7 506.7
T. P. 190-----	° ' " 47 14 35.44 68 40 48.48	° ' " 87 00 20 125 23 30 267 00 20 283 24 30	T. P. 191..... Ref. Mon. C-90... Ref. Mon. C-89... T. P. 189.....	369.8 1,106.0 804.2 351.6	T. P. 209-----	° ' " 47 13 27.98 68 45 28.20	° ' " 65 20 40 146 22 50 240 39 20 326 22 50	T. P. 210..... Ref. Mon. C-95... T. P. 208..... Ref. Mon. S-101...	605.5 829.1 448.9 295.7
T. P. 191-----	° ' " 47 14 34.82 68 41 06.04	° ' " 62 48 10 128 36 30 141 06 20 267 00 10	Ref. Mon. S-97.... T. P. 192..... Ref. Mon. C-90... T. P. 190.....	1,157.4 271.3 847.8 369.8	T. P. 210-----	° ' " 47 13 19.80 68 45 54.35	° ' " 5 31 10 74 20 00 185 31 10 245 20 20	Ref. Mon. S-102... T. P. 211..... Ref. Mon. C-95... T. P. 209.....	187.5 354.0 947.4 605.5
T. P. 192-----	° ' " 47 14 40.30 68 41 16.12	° ' " 79 33 10 146 51 20 308 36 20 326 51 20	T. P. 193..... Ref. Mon. C-90... T. P. 191..... Ref. Mon. S-96....	350.7 585.9 271.3 1,766.0	T. P. 211-----	° ' " 47 13 16.71 68 46 10.56	° ' " 89 06 10 105 44 40 254 19 50 285 44 40	T. P. 212..... Ref. Mon. 163-A... T. P. 210..... Ref. Mon. S-102...	937.6 773.8 354.0 335.4
T. P. 193-----	° ' " 47 14 38.24 68 41 32.52	° ' " 36 39 40 61 50 20 259 33 00 317 11 30	Ref. Mon. S-97.... T. P. 194..... T. P. 192..... Ref. Mon. S-96....	791.3 302.6 350.7 1,928.7	T. P. 212-----	° ' " 47 13 16.23 68 46 55.12	° ' " 40 36 40 70 12 00 220 36 40 269 05 30	Ref. Mon. S-103... T. P. 213..... Ref. Mon. 163-A... T. P. 211.....	557.1 1,847.3 296.0 937.6
T. P. 194-----	° ' " 47 14 33.62 68 41 45.20	° ' " 22 41 00 48 24 30 202 41 00 241 50 10	Ref. Mon. S-97.... T. P. 195..... Ref. Mon. C-90... T. P. 193.....	533.2 712.0 755.4 302.6	T. P. 213-----	° ' " 47 12 55.96 68 48 17.72	° ' " 1 03 40 87 02 50 181 03 40 250 11 00	Ref. Mon. 165.... T. P. 214..... Ref. Mon. C-98... T. P. 212.....	375.9 545.1 324.9 1,847.3
T. P. 195-----	° ' " 47 14 18.32 68 42 10.52	° ' " 76 58 00 93 22 50 228 24 10 273 22 50	T. P. 196..... Ref. Mon. S-98... T. P. 194..... Ref. Mon. S-97....	281.6 905.9 712.0 327.4	T. P. 214-----	° ' " 47 12 55.05 68 48 43.59	° ' " 16 51 50 56 20 50 267 02 30 296 24 30	Ref. Mon. 167.... T. P. 215..... T. P. 213..... Ref. Mon. 166....	174.3 337.5 545.1 255.6
T. P. 196-----	° ' " 47 14 16.26 68 42 23.56	° ' " 113 03 30 192 27 30 256 57 50 295 47 40	T. P. 197..... Ref. Mon. C-91... T. P. 195..... Ref. Mon. S-97....	236.3 1,175.0 281.6 602.8	T. P. 215-----	° ' " 47 12 49.00 68 48 56.94	° ' " 31 56 20 84 58 30 236 20 40 264 58 30	T. P. 216..... Ref. Mon. C-99... T. P. 214..... Ref. Mon. 167....	300.0 759.0 337.5 231.3
T. P. 197-----	° ' " 47 14 19.25 68 42 33.90	° ' " 93 22 30 149 02 00 273 22 30 293 03 20	Ref. Mon. S-98.... T. P. 198..... Ref. Mon. S-97.... T. P. 196.....	413.3 105.8 820.0 236.3	T. P. 216-----	° ' " 47 12 40.75 68 49 04.48	° ' " 57 25 50 107 28 20 211 56 20 287 28 20	T. P. 217..... Ref. Mon. C-99... T. P. 215..... Ref. Mon. 168....	822.0 626.3 300.0 460.9
T. P. 198-----	° ' " 47 14 22.20 68 42 36.49	° ' " 99 02 50 114 49 50 279 02 50 329 02 00	Ref. Mon. 158.... T. P. 199..... Ref. Mon. S-97.... T. P. 197.....	1,025.1 237.5 884.0 105.8	T. P. 217-----	° ' " 47 12 26.42 68 49 37.40	° ' " 8 35 30 46 09 50 188 35 30 237 25 30	Ref. Mon. 169.... T. P. 218..... Ref. Mon. C-99... T. P. 216.....	296.1 530.2 637.7 822.0
T. P. 199-----	° ' " 47 14 25.43 68 42 46.74	° ' " 40 36 10 105 10 10 220 36 10 294 49 40	Ref. Mon. S-98.... T. P. 200..... Ref. Mon. C-91... T. P. 198.....	219.0 235.2 1,138.3 237.5	T. P. 218-----	° ' " 47 12 14.53 68 49 55.57	° ' " 60 09 50 160 41 50 226 09 40 340 41 50	T. P. 219..... Ref. Mon. C-100... T. P. 217..... Ref. Mon. S-106...	542.2 367.4 530.2 443.6
T. P. 200-----	° ' " 47 14 27.42 68 42 57.53	° ' " 77 44 40 159 38 30 285 10 00 339 38 30	T. P. 201..... Ref. Mon. 156.... T. P. 199..... Ref. Mon. S-98....	131.2 163.5 235.2 243.0	T. P. 219-----	° ' " 47 12 05.79 68 50 17.91	° ' " 63 28 40 103 33 50 240 09 30 283 33 50	T. P. 220..... Ref. Mon. C-101... T. P. 218..... Ref. Mon. S-106...	442.6 604.7 542.2 634.7
T. P. 201-----	° ' " 47 14 26.51 68 43 03.63	° ' " 65 10 20 201 30 20 257 44 40 313 13 10	T. P. 202..... Ref. Mon. 156.... T. P. 200..... Ref. Mon. S-98....	663.3 194.7 131.2 292.0	T. P. 220-----	° ' " 47 11 59.39 68 50 36.73	° ' " 54 18 40 150 31 20 243 28 30 330 31 20	T. P. 221..... Ref. Mon. C-101... T. P. 219..... Ref. Mon. S-107...	660.1 389.9 442.6 287.5
T. P. 202-----	° ' " 47 14 17.49 68 43 32.25	° ' " 49 05 10 154 56 10 245 09 50 334 56 10	T. P. 203..... Ref. Mon. 159-A... T. P. 201..... Ref. Mon. 159-B...	294.2 50.5 663.3 28.9	T. P. 221-----	° ' " 47 11 46.92 68 51 02.20	° ' " 22 55 00 78 44 30 234 18 20 258 44 30	T. P. 222..... Ref. Mon. C-103... T. P. 220..... Ref. Mon. S-107...	192.5 920.7 660.1 690.9
T. P. 203-----	° ' " 47 14 11.25 68 43 42.82	° ' " 66 06 20 106 39 00 229 06 00 280 39 00	T. P. 204..... Ref. Mon. 160.... T. P. 202..... Ref. Mon. S-99...	190.4 510.3 294.2 420.5	T. P. 222-----	° ' " 47 11 41.18 68 51 05.76	° ' " 45 42 30 137 31 40 202 55 00 317 31 40	T. P. 223..... Ref. Mon. C-102... T. P. 221..... Ref. Mon. S-108...	686.8 449.3 192.5 193.3
T. P. 204-----	° ' " 47 14 08.75 68 43 51.09	° ' " 90 03 40 117 37 40 246 06 10 270 03 30	T. P. 205..... Ref. Mon. 160.... T. P. 203..... Ref. Mon. S-99...	309.6 369.6 190.4 587.3	T. P. 223-----	° ' " 47 11 25.65 68 51 29.11	° ' " 65 52 00 144 49 00 225 42 20 324 49 00	T. P. 224..... Ref. Mon. C-103... T. P. 222..... Ref. Mon. S-109...	343.0 584.1 686.8 140.1
T. P. 205-----	° ' " 47 14 08.76 68 44 05.81	° ' " 31 45 40 38 18 10 211 45 40 270 03 30	Ref. Mon. 162.... T. P. 206..... Ref. Mon. 159.... T. P. 204.....	358.9 379.9 751.1 309.6	T. P. 224-----	° ' " 47 11 21.11 68 51 43.98	° ' " 86 15 20 86 53 10 245 51 40 266 15 20	Ref. Mon. C-105... T. P. 225..... T. P. 223..... Ref. Mon. S-109...	1390.7 346.6 343.0 394.6

## BOUNDARY TURNING POINTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 225-----	47 11 20.50 68 52 00.42	4 39 40 92 44 20 184 39 40 266 53 00	Ref. Mon. S-110--- T. P. 226----- Ref. Mon. C-104--- T. P. 224-----	461.6 371.8 426.4 346.6	T. P. 228-----	47 10 58.83 68 52 57.93	79 53 50 99 30 30 223 19 10 259 53 50	Ref. Mon. 173----- T. P. 229----- T. P. 227----- Ref. Mon. S-110---	716.7 177.6 667.1 1191.7
T. P. 226-----	47 11 21.07 68 52 18.05	62 10 20 82 22 10 272 44 10 325 03 30	T. P. 227----- Ref. Mon. C-105--- T. P. 225----- Ref. Mon. S-110---	431.5 676.5 371.8 582.9	T. P. 229-----	47 10 59.78 68 53 06.25	46 33 10 70 18 30 226 33 10 279 30 30	Ref. Mon. 171----- T. P. 230----- Ref. Mon. 170----- T. P. 228-----	278.4 375.7 398.8 177.6
T. P. 227-----	47 11 14.55 68 52 36.18	43 19 30 111 07 00 242 10 10 291 07 00	T. P. 228----- Ref. Mon. C-105--- T. P. 226----- Ref. Mon. S-110---	667.1 309.7 431.5 767.0	T. P. 230-----	47 10 55.68 68 53 23.05	15 52 00 103 46 195 52 00 250 18 10	Ref. Mon. 172----- T. P. 231----- Ref. Mon. C-106--- T. P. 229-----	380.6 361.6 127.9 375.7



# GEOGRAPHIC POSITIONS OF MONUMENTS REFERENCING THE TURNING POINTS OF THE INTERNATIONAL BOUNDARY THROUGH THE ST. JOHN RIVER

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Ref. Mon. S-1...	47 04 00.26 67 47 32.02	236 04 20 236 04 20 304 14 00	T. P. 1..... Ref. Mon. C-1..... Mon. 117.....	123.6 294.6 124.9	Ref. Mon. S-12...	47 06 03.41 67 52 57.97	221 00 00 221 00 00	T. P. 14..... Ref. Mon. C-11....	273.8 390.1
Ref. Mon. C-1...	47 04 05.58 67 47 20.43	31 02 10 56 04 30 56 04 30	Mon. 117..... T. P. 1..... Ref. Mon. S-1.....	273.9 171.0 294.6	Ref. Mon. C-12...	47 06 19.58 67 52 55.60	48 08 30 48 08 30	T. P. 15..... Ref. Mon. S-13....	150.9 442.5
Mon. 117.....	47 03 57.98 67 47 27.12	124 14 00 139 33 40 139 33 40 179 42 30 211 02 00	Ref. Mon. S-1..... T. P. 2..... Ref. Mon. C-2..... T. P. 1..... Ref. Mon. C-1.....	124.9 516.1 820.0 139.2 273.9	Ref. Mon. S-13...	47 06 10.02 67 53 11.23	127 41 50 228 08 20 228 08 20	Ref. Mon. S-14.... T. P. 15..... Ref. Mon. C-12....	363.8 291.6 442.5
Ref. Mon. C-2...	47 04 18.19 67 47 52.33	19 02 50 319 33 20 319 33 20	Ref. Mon. S-2..... T. P. 2..... Mon. 117.....	270.0 303.9 820.0	Ref. Mon. C-13...	47 06 30.62 67 53 06.49	103 04 00	Ref. Mon. S-15....	429.2
Ref. Mon. S-2...	47 04 09.92 67 47 56.51	199 02 40	Ref. Mon. C-2.....	270.0	Ref. Mon. C-14...	47 06 37.73 67 53 13.68	65 17 20 65 17 20 150 43 50 150 43 50	T. P. 16..... Ref. Mon. S-15.... T. P. 17..... Ref. Mon. S-16....	142.8 293.3 481.4 711.6
Ref. Mon. S-3...	47 04 17.38 67 48 21.09	215 31 00 215 31 00	T. P. 3..... Ref. Mon. C-3.....	175.8 284.0	Ref. Mon. S-15...	47 06 33.76 67 53 26.32	245 17 10 245 17 10 283 03 40	T. P. 16..... Ref. Mon. C-14.... Ref. Mon. C-13....	150.5 293.3 429.2
Ref. Mon. C-3...	47 04 24.86 67 48 13.27	35 31 10 35 31 10	T. P. 3..... Ref. Mon. S-3.....	108.2 284.0	Ref. Mon. S-16...	47 06 57.83 67 53 30.18	199 18 10 199 18 10 287 11 40 330 43 30 330 43 30	T. P. 18..... Ref. Mon. C-16.... Ref. Mon. C-15.... T. P. 17..... Ref. Mon. C-14....	425.3 796.7 320.0 230.2 711.6
Ref. Mon. S-4...	47 04 31.34 67 48 46.33	219 34 40 219 34 40	T. P. 4..... Ref. Mon. C-4.....	116.2 270.8	Ref. Mon. C-15...	47 06 54.77 67 53 15.68	107 11 50	Ref. Mon. S-16....	320.0
Ref. Mon. C-4...	47 04 38.10 67 48 38.15	39 34 50 39 34 50	T. P. 4..... Ref. Mon. S-4.....	154.6 270.8	Ref. Mon. C-16...	47 07 22.18 67 53 17.69	19 18 20 19 18 20 79 47 10 79 47 10 135 23 40 135 23 40	T. P. 18..... Ref. Mon. S-16.... T. P. 19..... Ref. Mon. S-17.... T. P. 20..... Ref. Mon. 120....	371.4 796.7 216.7 489.2 252.8 422.9
Ref. Mon. S-5...	47 04 42.29 67 48 58.42	143 30 10 143 30 10	T. P. 6..... Ref. Mon. C-6.....	709.9 1,019.2	Ref. Mon. S-17...	47 07 19.37 67 53 40.53	205 26 00 205 26 00 259 46 50 259 46 50	Ref. Mon. 120.... T. P. 21..... T. P. 19..... Ref. Mon. C-16....	429.4 562.0 272.5 489.2
Ref. Mon. C-5...	47 04 54.33 67 48 55.30	81 20 20 81 20 20	T. P. 5..... Ref. Mon. S-6.....	172.5 538.7	Ref. Mon. 120...	47 07 31.93 67 53 31.78	25 26 10 159 49 00 159 49 00 159 49 00 205 26 10 315 23 30 315 23 30	Ref. Mon. S-17.... T. P. 22..... T. P. 23..... Ref. Mon. C-17.... T. P. 20..... T. P. 21..... Ref. Mon. C-16....	429.4 444.4 590.4 800.8 132.6 170.1 422.9
Ref. Mon. S-6...	47 04 51.70 67 49 20.55	261 20 00 261 20 00	T. P. 5..... Ref. Mon. C-5.....	366.2 538.7	Ref. Mon. C-17...	47 07 56.27 67 53 44.89	55 14 50 55 14 50 339 48 50 339 48 50 339 48 50	T. P. 24..... Ref. Mon. S-18.... T. P. 23..... T. P. 22..... Ref. Mon. 120....	88.5 322.7 201.4 356.4 800.8
Ref. Mon. C-6...	47 05 08.82 67 49 27.16	59 58 10 59 58 10 323 29 40 323 29 40	T. P. 7..... Ref. Mon. S-7..... T. P. 6..... Ref. Mon. S-5.....	217.5 418.8 309.3 1,019.2	Ref. Mon. S-18...	47 07 50.31 67 53 57.47	175 55 40 175 55 40 235 14 40 235 14 40	T. P. 25..... Ref. Mon. C-18.... T. P. 24..... Ref. Mon. C-17....	289.9 762.8 234.2 322.7
Ref. Mon. S-7...	47 05 02.04 67 49 44.34	128 13 10 128 13 10 239 57 50 239 57 50	T. P. 8..... Ref. Mon. C-7..... T. P. 7..... Ref. Mon. C-6.....	215.8 834.1 201.3 418.8	Ref. Mon. C-18...	47 08 14.95 67 54 00.04	355 55 40 355 55 40	T. P. 25..... Ref. Mon. S-18....	472.9 762.8
Ref. Mon. C-7...	47 05 18.75 67 50 15.41	50 50 30 50 50 30 308 12 50 308 12 50	T. P. 9..... Ref. Mon. S-8..... T. P. 8..... Ref. Mon. S-7.....	131.7 447.0 618.3 834.1	Ref. Mon. S-19...	47 08 04.87 67 54 15.23	181 18 30 181 18 30	T. P. 26..... Ref. Mon. C-19....	214.4 821.6
Ref. Mon. S-8...	47 05 09.61 67 50 31.84	230 50 10 230 50 10	T. P. 9..... Ref. Mon. C-7.....	315.3 447.0	Ref. Mon. C-19...	47 08 31.47 67 54 14.34	1 18 30 1 18 30 126 46 10 126 46 10	T. P. 26..... Ref. Mon. S-19.... T. P. 27..... Ref. Mon. S-21....	607.2 821.6 403.1 1,039.1
Ref. Mon. C-8...	47 05 39.03 67 50 46.05	71 24 50 71 24 50	T. P. 10..... Ref. Mon. 119....	258.0 420.9	Ref. Mon. S-20...	47 08 31.53 67 54 31.73	167 34 50 167 34 50	T. P. 28..... Ref. Mon. C-20....	598.3 903.9
Ref. Mon. 119....	47 05 34.68 67 51 04.96	251 24 30 251 24 30	T. P. 10..... Ref. Mon. C-8.....	162.9 420.9	Ref. Mon. C-20...	47 09 00.12 67 54 40.96	45 57 10 45 57 10 103 44 40 103 44 40 347 34 40 347 34 40	T. P. 29..... Ref. Mon. S-21.... T. P. 30..... Ref. Mon. S-22.... T. P. 28..... Ref. Mon. S-20....	179.1 377.9 827.7 1,232.7 305.6 903.9
Ref. Mon. S-9...	47 05 23.88 67 51 16.02	151 58 40 151 58 40	T. P. 11..... Ref. Mon. C-9.....	883.3 1,331.4	Ref. Mon. S-21...	47 08 51.61 67 54 53.85	225 57 00 225 57 00 306 45 40 306 45 40	T. P. 29..... Ref. Mon. C-20.... T. P. 27..... Ref. Mon. C-19....	198.8 377.9 636.0 1,039.1
Ref. Mon. C-9...	47 06 01.94 67 51 45.68	19 18 00 331 58 20 331 58 20	Ref. Mon. S-10.... T. P. 11..... Ref. Mon. S-9.....	489.4 448.1 1,331.4					
Ref. Mon. S-10...	47 05 46.98 67 51 53.35	199 17 50	Ref. Mon. C-9.....	489.4					
Ref. Mon. C-10...	47 06 05.16 67 52 03.96	48 53 30 48 53 30	T. P. 12..... Ref. Mon. S-11....	128.3 397.8					
Ref. Mon. S-11...	47 05 56.69 67 52 18.17	130 43 30 130 43 30 228 53 20 228 53 20	T. P. 13..... Ref. Mon. C-11.... T. P. 12..... Ref. Mon. C-10....	378.6 769.5 269.5 397.8					
Ref. Mon. C-11...	47 06 12.94 67 52 45.83	41 00 10 41 00 10 310 43 10 310 43 10	T. P. 14..... Ref. Mon. S-12.... T. P. 13..... Ref. Mon. S-11....	116.3 390.1 390.9 769.5					

## REFERENCE MONUMENTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Ref. Mon. S-22	47 09 09.60 67 55 37.80	167 34 20 167 34 20 283 44 00 283 44 00	T. P. 31..... Ref. Mon. C-22..... T. P. 30..... Ref. Mon. C-20.....	276.1 707.7 405.0 1,232.7	Ref. Mon. 123	47 12 03.42 67 57 56.43	301 01 30	Ref. Mon. 122	561.2
Ref. Mon. C-21	47 09 23.09 67 55 22.82	89 05 40 89 05 40	T. P. 32..... Ref. Mon. S-23.....	480.5 665.0	Ref. Mon. C-30	47 12 19.94 67 58 09.28	28 46 30 113 30 30 113 30 30	Ref. Mon. S-32..... T. P. 45..... Ref. Mon. C-32.....	782.9 383.1 1,249.1
Ref. Mon. C-22	47 09 31.98 67 55 45.03	347 34 20 347 34 20	T. P. 31..... Ref. Mon. S-22.....	431.6 707.7	Ref. Mon. S-32	47 11 57.72 67 58 27.19	208 46 10	Ref. Mon. C-30	782.9
Van Buren highway bridge bound- ary point.	47 09 35.37 67 55 53.39	3 04 10 157 04 20 337 04 20	Ref. Mon. S-23..... T. P. 33..... T. P. 32.....	390.2 216.2 419.9	Ref. Mon. S-33	47 12 10.54 67 58 45.78	154 25 30 154 25 30 190 37 00	T. P. 46..... Ref. Mon. C-32..... Ref. Mon. C-31.....	721.7 874.1 631.8
Ref. Mon. S-23	47 09 22.75 67 55 54.38	173 51 40 173 51 40 183 04 10	T. P. 33..... Ref. Mon. C-23..... Van Buren high- way bridge boundary point. T. P. 32..... Ref. Mon. C-21.....	592.1 938.3 390.2 184.5 665.0	Ref. Mon. C-32	47 12 36.07 67 59 03.71	75 32 20 75 32 20 293 29 50 293 29 50 334 25 20 334 25 20	T. P. 47..... Ref. Mon. S-35..... T. P. 45..... Ref. Mon. C-30..... T. P. 46..... Ref. Mon. S-33.....	286.0 683.7 866.0 1,249.1 152.4 874.1
Ref. Mon. S-24	47 09 45.34 67 56 18.76	240 20 00 240 20 00	T. P. 34..... Ref. Mon. C-23.....	257.6 475.4	Ref. Mon. S-34	47 12 23.09 67 59 18.25	160 09 30 160 09 30	T. P. 48..... Ref. Mon. C-33.....	441.3 795.5
Ref. Mon. C-23	47 09 52.96 67 55 59.14	60 20 10 60 20 10 115 48 30 115 48 30 353 51 40 353 51 40	T. P. 34..... Ref. Mon. S-24..... T. P. 35..... Ref. Mon. S-25..... T. P. 33..... Ref. Mon. S-23.....	217.8 475.4 377.6 612.9 346.2 938.3	Ref. Mon. S-35	47 12 30.54 67 59 35.17	255 32 00 255 32 00	T. P. 47..... Ref. Mon. C-32.....	397.7 683.7
Ref. Mon. S-25	47 10 01.60 67 56 25.34	295 48 10 295 48 10	T. P. 35..... Ref. Mon. C-23.....	235.3 612.9	Ref. Mon. C-33	47 12 47.32 67 59 31.08	340 09 30 340 09 30	T. P. 48..... Ref. Mon. S-34.....	354.2 795.5
Ref. Mon. S-26	47 10 13.22 67 56 32.15	249 06 50 249 06 50	T. P. 36..... Ref. Mon. C-24.....	225.3 348.0	Ref. Mon. S-36	47 12 52.74 68 00 07.19	223 56 10	Ref. Mon. 124	243.3
Ref. Mon. C-24	47 10 17.24 67 56 16.71	69 07 00 69 07 00	T. P. 36..... Ref. Mon. S-26.....	122.7 348.0	Ref. Mon. C-34	47 13 05.17 67 59 52.08	31 54 20 31 54 20	T. P. 49..... Ref. Mon. 124.....	149.1 282.3
Ref. Mon. S-27	47 10 25.40 67 56 48.42	218 14 00 218 14 00	T. P. 37..... Ref. Mon. C-25.....	348.2 493.0	Ref. Mon. C-35	47 13 32.80 68 00 14.93	83 44 40 123 08 50 123 08 50	Ref. Mon. 126..... T. P. 50..... Ref. Mon. S-38.....	320.5 306.5 1,700.9
Keegan railroad bridge bound- ary point.	47 10 30.16 67 56 34.63	149 20 20 183 28 50 329 20 20	T. P. 37..... Ref. Mon. C-25..... T. P. 36.....	147.1 240.7 514.9	Ref. Mon. 126	47 13 31.67 68 00 30.07	263 44 30	Ref. Mon. C-35	320.5
Ref. Mon. C-25	47 10 37.94 67 56 33.93	3 28 50	Keegan railroad bridge bound- ary point. T. P. 37..... Ref. Mon. S-27.....	240.7 144.8 493.0	Ref. Mon. S-37	47 13 15.28 68 00 27.42	141 42 30	Ref. Mon. S-38	1,874.2
Ref. Mon. S-28	47 10 34.63 67 56 55.28	230 27 30 230 27 30	T. P. 38..... Ref. Mon. C-26.....	286.5 434.2	Ref. Mon. S-38	47 14 02.91 68 01 22.63	161 01 30 161 01 30 201 36 40 256 34 30 256 34 30 303 08 00 303 08 00 321 41 50	T. P. 53..... Ref. Mon. C-37..... T. P. 52..... T. P. 51..... Ref. Mon. C-36..... T. P. 50..... Ref. Mon. C-35..... Ref. Mon. S-37.....	697.4 1,316.0 535.7 438.2 598.6 1,394.4 1,700.9 1,874.2
Ref. Mon. C-26	47 10 43.58 67 56 39.38	50 27 40 50 27 40	T. P. 38..... Ref. Mon. S-28.....	147.7 434.2	Ref. Mon. C-36	47 14 07.41 68 00 54.95	76 34 50 76 34 50 133 00 50	T. P. 51..... Ref. Mon. S-38..... T. P. 52.....	160.4 598.6 526.4
Ref. Mon. S-29	47 10 50.93 67 57 08.88	247 25 00 247 25 00	T. P. 39..... Ref. Mon. C-27.....	276.9 398.8	Ref. Mon. C-37	47 14 43.21 68 01 42.97	62 59 20 62 59 20 341 01 20 341 01 20	T. P. 54..... Ref. Mon. S-39..... T. P. 53..... Ref. Mon. S-38.....	460.9 711.1 618.6 1,316.0
Ref. Mon. C-27	47 10 55.89 67 56 51.39	67 25 10 114 20 30 114 20 30	T. P. 39..... Ref. Mon. S-29..... T. P. 40..... Ref. Mon. S-30.....	121.9 398.8 377.1 712.6	Ref. Mon. S-39	47 14 32.75 68 02 13.10	155 35 00 155 35 00 242 59 00 242 59 00	T. P. 55..... Ref. Mon. C-38..... T. P. 54..... Ref. Mon. C-37.....	511.9 1,120.6 250.2 711.1
Ref. Mon. S-30	47 11 05.40 67 57 22.22	294 20 00 294 20 00	T. P. 40..... Ref. Mon. C-27.....	335.5 712.6	Ref. Mon. C-38	47 15 05.79 68 02 35.13	335 34 40 335 34 40	T. P. 55..... Ref. Mon. S-39.....	608.7 1,120.6
Ref. Mon. C-28	47 11 15.13 67 56 57.69	150 58 20 150 58 20	T. P. 41..... Ref. Mon. 121.....	342.6 967.4	Ref. Mon. S-40	47 14 55.46 68 03 03.18	158 47 20 158 47 20	T. P. 56..... Ref. Mon. 128.....	398.8 641.6
Ref. Mon. 121	47 11 42.52 67 57 19.99	103 37 40 210 37 20 210 37 20 283 37 40 330 58 00 330 58 00	Ref. Mon. S-31..... T. P. 43..... Ref. Mon. C-29..... T. P. 42..... T. P. 41..... Ref. Mon. C-28.....	470.7 216.1 266.1 228.6 624.8 967.4	Ref. Mon. 128	47 15 14.83 68 03 14.22	338 47 10 338 47 10	T. P. 56..... Ref. Mon. S-40.....	242.8 641.6
Ref. Mon. C-29	47 11 49.94 67 57 13.55	30 37 20 30 37 20	T. P. 43..... Ref. Mon. 121.....	50.0 266.1	Ref. Mon. S-41	47 15 14.41 68 03 39.91	128 04 20 128 04 20 138 11 30 138 11 30 212 49 50 212 49 50	T. P. 60..... Ref. Mon. 130..... T. P. 58..... Ref. Mon. C-40..... T. P. 57..... Ref. Mon. C-39.....	1,559.6 2,212.4 503.3 1,785.5 172.7 482.1
Ref. Mon. S-31	47 11 46.11 67 57 41.72	214 56 40 214 56 40 283 37 20 283 37 20	Ref. Mon. 122..... T. P. 44..... Ref. Mon. 121..... T. P. 42.....	299.1 488.5 470.7 699.3	Ref. Mon. C-39	47 15 27.52 68 03 27.48	32 50 00 32 50 00	T. P. 57..... Ref. Mon. S-41.....	309.4 482.1
Ref. Mon. 122	47 11 54.05 67 57 33.58	34 56 50 121 01 40 214 56 50	Ref. Mon. S-31..... Ref. Mon. 123..... T. P. 44.....	299.1 561.2 189.4					



## REFERENCE MONUMENTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
Ref. Mon. C-40.	° ' " 47 15 57.50 68 04 36.53	° ' " 93 27 40 93 27 40 134 13 00 134 13 00 318 10 50 318 10 50	T. P. 61..... Ref. Mon. 130..... T. P. 63..... Ref. Mon. C-41..... T. P. 58..... Ref. Mon. S-41.....	92.3 552.4 1,706.4 2,374.9 1,282.2 1,785.5	Ref. Mon. C-46.	° ' " 47 19 49.01 68 10 35.60	° ' " 4 58 20 4 58 20 292 22 00 292 22 00	T. P. 80..... Ref. Mon. S-48..... T. P. 79..... Ref. Mon. C-45.....	144.6 651.1 488.5 2,112.2
Ref. Mon. S-42.	47 15 26.60 68 05 12.53	160 05 10 160 05 10 191 44 40 191 44 40 257 06 50	T. P. 64..... Ref. Mon. C-41..... T. P. 62..... Ref. Mon. 130..... T. P. 59.....	2,474.9 2,776.2 1,558.7 1,008.7 943.2	Ref. Mon. C-47.	47 19 53.12 68 10 47.30	20 24 40 20 24 40	T. P. 81..... Ref. Mon. S-49.....	130.7 468.4
Ref. Mon. 130.	47 15 58.58 68 05 02.76	11 44 40 191 44 40 273 27 20 273 27 20 308 03 20 308 03 20 317 25 30	Ref. Mon. S-42..... T. P. 62..... T. P. 61..... Ref. Mon. C-40..... T. P. 60..... Ref. Mon. S-41..... T. P. 59.....	1,008.7 550.0 460.1 552.4 652.8 2,212.4 1,055.5	Ref. Mon. C-48.	47 20 13.87 68 11 42.22	61 49 20	Ref. Mon. S-50.....	517.3
Ref. Mon. C-41.	47 16 51.12 68 05 57.52	73 22 40 73 22 40 99 02 20 99 02 20 314 12 00 314 12 00 340 04 40 340 04 40	T. P. 65..... Ref. Mon. S-43..... T. P. 66..... Ref. Mon. S-44..... T. P. 63..... Ref. Mon. C-40..... T. P. 64..... Ref. Mon. S-42.....	294.8 1,064.1 488.6 2,111.7 668.5 2,374.9 301.3 2,776.2	Ref. Mon. C-49.	47 20 35.38 68 12 16.44	34 05 40 34 05 40 50 22 00 64 34 10 97 01 30 97 01 30 343 52 50 343 52 50	T. P. 83..... Ref. Mon. S-51..... T. P. 84..... T. P. 85..... T. P. 87..... Ref. Mon. S-52..... Ref. Mon. S-50.....	461.2 641.7 732.4 890.2 1,509.3 2,080.6 419.9 945.7
Ref. Mon. S-43.	47 16 41.26 68 06 46.03	253 22 00 253 22 00	T. P. 65..... Ref. Mon. C-41.....	769.3 1,064.1	Ref. Mon. S-51.	47 20 18.18 68 12 33.58	107 26 40 108 33 10 114 44 20 114 44 20 214 05 30 214 05 30	T. P. 84..... T. P. 85..... T. P. 86..... Ref. Mon. S-52..... T. P. 83..... Ref. Mon. C-49.....	214.2 468.6 888.7 1,877.7 180.5 641.7
Ref. Mon. S-44.	47 17 01.85 68 07 36.76	151 04 00 151 04 00 175 06 40 175 06 40 224 03 10 224 03 10 279 01 00 279 01 00	T. P. 70..... Ref. Mon. C-43..... Ref. Mon. 134..... T. P. 69..... T. P. 67..... Ref. Mon. C-42..... T. P. 66..... Ref. Mon. C-41.....	1,514.6 2,177.7 800.8 1,146.4 573.1 789.1 1,623.1 2,111.7	Ref. Mon. C-50.	47 21 04.36 68 13 27.36	41 58 30 41 58 30 88 10 00 88 10 00 126 20 20 126 20 20	T. P. 88..... Ref. Mon. S-52..... T. P. 89..... Ref. Mon. S-53..... T. P. 90..... Ref. Mon. C-51.....	126.5 861.8 137.3 1,930.3 424.5 1,724.8
Ref. Mon. C-42.	47 17 20.21 68 07 10.65	44 03 30 44 03 30 110 32 00 110 32 00	T. P. 67..... Ref. Mon. S-44..... T. P. 68..... Ref. Mon. 134.....	216.0 789.1 335.5 658.8	Ref. Mon. S-52.	47 20 43.61 68 13 54.82	153 56 20 153 56 20 167 31 10 221 58 10 221 58 10 277 00 20 277 00 20 294 43 20 294 43 20	T. P. 92..... Ref. Mon. C-51..... T. P. 91..... T. P. 88..... Ref. Mon. C-50..... T. P. 87..... Ref. Mon. C-49..... T. P. 86..... Ref. Mon. S-51.....	1,169.6 1,850.9 1,135.2 735.3 861.8 571.3 2,080.6 999.0 1,877.7
Ref. Mon. 134.	47 17 27.69 68 07 40.01	175 06 40 290 31 40 290 31 40 355 06 40	T. P. 69..... T. P. 68..... Ref. Mon. C-42..... Ref. Mon. S-44.....	345.6 323.3 658.8 800.8	Ref. Mon. C-51.	47 21 37.45 68 14 33.57	26 28 10 26 28 10 306 19 30 306 19 30 333 55 50 333 55 50	T. P. 93..... Ref. Mon. S-53..... T. P. 90..... Ref. Mon. C-50..... T. P. 92..... Ref. Mon. S-52.....	1,014.5 1,211.0 1,300.3 1,724.8 681.3 1,850.9
Ref. Mon. C-43.	47 18 03.56 68 08 26.91	30 06 50 30 06 50 331 03 20 331 03 20	T. P. 71..... Ref. Mon. S-45..... T. P. 70..... Ref. Mon. S-44.....	168.6 788.0 663.1 2,177.7	Ref. Mon. S-53.	47 21 02.35 68 14 59.29	206 27 50 206 27 50 244 26 00 268 08 50 268 08 50	T. P. 93..... Ref. Mon. C-51..... T. P. 91..... T. P. 89..... Ref. Mon. C-50.....	196.5 1,211.0 1,227.8 1,793.0 1,930.3
Ref. Mon. S-45.	47 17 41.49 68 08 45.73	174 31 50 174 31 50 210 06 40 210 06 40	T. P. 72..... Ref. Mon. C-44..... T. P. 71..... Ref. Mon. C-43.....	1,219.8 2,194.3 619.4 788.0	Ref. Mon. C-52.	47 21 32.17 68 15 26.85	1 08 10 39 53 10 39 53 10 66 07 00 66 07 00	Ref. Mon. 134-A..... T. P. 94..... Ref. Mon. S-54..... T. P. 95..... Ref. Mon. S-55.....	632.3 956.6 1,612.9 1,182.1 2,652.5
Ref. Mon. S-46.	47 18 12.60 68 09 30.00	194 50 40 194 50 40 210 29 40 210 29 40	T. P. 74..... Ref. Mon. C-45..... T. P. 73..... Ref. Mon. C-44.....	1,148.7 2,248.2 811.6 1,419.9	Ref. Mon. 134-A	47 21 11.70 68 15 27.44	181 08 10	Ref. Mon. C-52.....	632.3
Ref. Mon. C-44.	47 18 52.22 68 08 55.69	30 30 10 30 30 10 101 29 10 101 29 10 354 31 40 354 31 40	T. P. 73..... Ref. Mon. S-46..... T. P. 75..... Ref. Mon. S-47..... T. P. 72..... Ref. Mon. S-45.....	608.3 1,419.9 396.7 1,377.7 974.5 2,194.3	Ref. Mon. S-54.	47 20 52.09 68 16 16.12	219 52 40 219 52 40	T. P. 94..... Ref. Mon. C-52.....	656.3 1,612.8
Ref. Mon. C-45.	47 19 22.97 68 09 02.57	14 51 00 14 51 00 60 44 50 60 44 50 112 23 10 112 23 10 122 07 50 125 37 00	T. P. 74..... Ref. Mon. S-46..... T. P. 76..... Ref. Mon. S-47..... T. P. 79..... Ref. Mon. C-46..... T. P. 78..... T. P. 77.....	1,099.5 2,248.2 198.7 1,381.8 1,624.4 2,112.5 888.0 431.4	Ref. Mon. C-53.	47 21 38.68 68 16 49.59	28 21 50 28 21 50 79 54 20 79 54 20 84 17 10 84 17 10 84 17 10	T. P. 96..... Ref. Mon. S-55..... T. P. 99..... Ref. Mon. 138..... T. P. 97..... T. P. 98..... Ref. Mon. C-54.....	127.1 1,449.4 1,052.3 1,746.4 381.5 802.5 1,606.7
Ref. Mon. S-47.	47 19 01.10 68 09 59.98	201 33 30 222 41 20 240 44 10 240 44 10 281 28 20 281 28 20	T. P. 78..... T. P. 77..... T. P. 76..... Ref. Mon. C-45..... T. P. 75..... Ref. Mon. C-44.....	1,233.9 1,260.6 1,183.1 1,381.8 981.0 1,377.7	Ref. Mon. S-55.	47 20 57.38 68 17 22.40	133 14 10 133 14 10 208 21 30 208 21 30 246 05 40 246 05 40	T. P. 100..... Ref. Mon. 138..... T. P. 96..... Ref. Mon. C-53..... T. P. 95..... Ref. Mon. C-52.....	1,105.5 1,414.8 1,322.3 1,449.4 1,470.4 2,652.5
Ref. Mon. S-48.	47 19 27.99 68 10 38.29	184 58 20 184 58 20	T. P. 80..... Ref. Mon. C-46.....	507.4 651.6					

## REFERENCE MONUMENTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
Ref. Mon. C-54.	47 21 33.49 68 18 05.78	21 48 10 21 48 10 264 16 10 264 16 10	T. P. 101..... Ref. Mon. S-56..... T. P. 98..... T. P. 97..... Ref. Mon. C-53.....	472.9 935.9 804.2 1,225.2 1,606.7	Ref. Mon. C-63.	47 19 28.93 68 23 17.97	284 09 30 284 09 30	T. P. 118..... Ref. Mon. S-65.....	229.1 695.5
Ref. Mon. 136...	47 21 24.01 68 18 20.67	3 28 30 3 23 30	T. P. 102..... Ref. Mon. S-56.....	144.5 577.3	Ref. Mon. S-65.	47 19 23.42 68 22 45.86	41 51 10 41 51 10 104 09 50 104 09 50	T. P. 120..... Ref. Mon. C-64..... T. P. 118..... Ref. Mon. C-63.....	534.2 1,320.8 466.4 695.5
Ref. Mon. 138...	47 21 28.76 68 18 11.52	259 53 20 259 53 20 313 13 40 313 13 40	T. P. 99..... Ref. Mon. C-53..... T. P. 100..... Ref. Mon. S-55.....	694.1 1,746.4 309.3 1,414.8	Ref. Mon. C-64.	47 18 51.56 68 23 27.82	209 14 20 209 14 20 221 50 40 221 50 40	T. P. 119..... Ref. Mon. S-64..... T. P. 120..... Ref. Mon. S-65.....	907.3 1,662.4 786.6 1,320.8
Ref. Mon. S-56...	47 21 05.35 68 18 22.34	142 13 10 142 13 10 183 28 30 183 28 30 201 48 00 201 48 00	T. P. 103..... Ref. Mon. C-55..... T. P. 102..... Ref. Mon. 136..... T. P. 101..... Ref. Mon. C-54.....	685.2 1,506.7 432.8 577.3 463.0 935.9	Ref. Mon. S-66.	47 18 35.10 68 22 39.47	103 16 40 103 16 40	T. P. 121..... Ref. Mon. C-65.....	311.1 1,105.0
Ref. Mon. C-55.	47 21 43.91 68 19 06.33	49 42 00 49 42 00 322 12 40 322 12 40	T. P. 104..... Ref. Mon. S-58..... T. P. 103..... Ref. Mon. S-56.....	456.4 1,472.8 821.5 1,506.7	Ref. Mon. C-65.	47 18 43.31 68 23 30.67	283 16 00 283 16 00 297 40 50 297 40 50	T. P. 121..... Ref. Mon. S-66..... T. P. 122..... Ref. Mon. S-67.....	793.9 1,105.0 882.7 1,103.0
Ref. Mon. S-57...	47 21 11.52 68 19 31.83	164 36 30 164 36 30	T. P. 105..... Ref. Mon. C-56.....	805.3 997.8	Ref. Mon. S-67.	47 18 26.72 68 22 44.17	31 53 30 50 36 40 50 36 40 117 41 20 117 41 20	T. P. 124..... T. P. 123..... Ref. Mon. C-66..... T. P. 122..... Ref. Mon. C-65.....	805.4 638.3 1,967.7 220.3 1,103.0
Ref. Mon. C-56.	47 21 42.67 68 19 44.45	55 59 50 55 59 50 344 36 20 344 36 20	T. P. 106..... Ref. Mon. S-59..... T. P. 105..... Ref. Mon. S-57.....	350.9 1,537.7 192.5 997.8	Ref. Mon. S-68.	47 17 59.95 68 22 30.03	16 05 00 16 05 00 76 56 00 76 56 00 101 11 20	T. P. 126..... Ref. Mon. 139..... T. P. 125..... Ref. Mon. C-66..... T. P. 124.....	542.1 1,655.2 489.7 1,866.0 736.6
Ref. Mon. S-58...	47 21 13.06 68 19 59.85	122 29 00 122 29 00 162 00 30 229 41 20 229 41 20	T. P. 108..... Ref. Mon. C-57..... T. P. 107..... T. P. 104..... Ref. Mon. C-55.....	965.4 1,523.5 727.1 1,016.4 1,472.8	Ref. Mon. C-66.	47 17 46.28 68 23 56.55	230 35 40 230 35 40 256 55 00 256 55 00 287 26 20 310 40 00 310 40 00 344 29 40 344 29 40	T. P. 123..... Ref. Mon. S-67..... T. P. 125..... Ref. Mon. S-68..... T. P. 127..... T. P. 130..... Ref. Mon. 139..... T. P. 132..... Ref. Mon. 140.....	1,329.4 1,967.7 1,376.3 1,866.0 1,874.8 1,672.8 1,792.5 1,072.1 1,286.1
Ref. Mon. C-57.	47 21 39.55 68 21 01.09	302 28 20 302 28 20 336 23 40 336 23 40	T. P. 108..... Ref. Mon. S-58..... T. P. 109..... Ref. Mon. S-59.....	558.1 1,523.5 355.8 833.6	Ref. Mon. S-69.	47 16 57.19 68 22 29.62	126 39 40	Ref. Mon. 139.....	582.5
Ref. Mon. S-59...	47 21 14.82 68 20 45.19	126 45 10 126 45 10 156 23 50 156 23 50 228 45 00 235 59 10 235 59 10	T. P. 110..... Ref. Mon. C-58..... T. P. 109..... Ref. Mon. C-57..... T. P. 107..... T. P. 106..... Ref. Mon. C-56.....	625.7 790.8 477.8 833.6 966.6 1,186.8 1,537.7	Ref. Mon. 139...	47 17 08.45 68 22 51.85	43 40 30 130 40 50 130 40 50 196 04 40 196 04 40 215 17 50 223 40 30 223 40 30 306 39 30	Ref. Mon. S-70..... T. P. 130..... Ref. Mon. C-66..... T. P. 126..... Ref. Mon. S-68..... T. P. 127..... T. P. 128..... T. P. 129..... Ref. Mon. S-69.....	1,398.7 119.7 1,792.5 1,113.1 1,655.2 742.7 523.0 278.4 582.5
Ref. Mon. C-58.	47 21 30.14 68 21 15.38	306 44 50 306 44 50	T. P. 110..... Ref. Mon. S-59.....	165.1 790.8	Ref. Mon. S-70.	47 16 35.69 68 23 37.81	223 40 00 223 40 00 223 40 00	Ref. Mon. 139..... T. P. 129..... T. P. 128.....	1,398.7 1,677.1 1,921.7
Ref. Mon. S-60...	47 21 12.21 68 21 10.47	100 34 30 100 34 30	T. P. 111..... Ref. Mon. C-59.....	837.3 1,483.5	Ref. Mon. 140...	47 17 06.15 68 23 40.19	68 02 50 164 30 00 164 30 00 248 02 50	Ref. Mon. 142..... T. P. 132..... Ref. Mon. C-66..... T. P. 131.....	305.7 214.0 1,286.1 314.7
Ref. Mon. S-61.	47 20 57.21 68 22 05.42	157 27 40 157 27 40	T. P. 112..... Ref. Mon. C-59.....	292.2 796.1	Ref. Mon. 141...	47 17 09.20 68 23 48.18	28 57 50	Ref. Mon. 142.....	238.3
Ref. Mon. C-59.	47 21 21.02 68 22 19.96	2 04 40 2 04 40 280 33 40 280 33 40 337 27 30 337 27 30	T. P. 113..... Ref. Mon. S-62..... T. P. 111..... Ref. Mon. S-60..... T. P. 112..... Ref. Mon. S-61.....	708.2 1,447.2 646.2 1,483.5 503.9 796.1	Ref. Mon. 142...	47 17 02.45 68 23 53.68	129 09 10 129 09 10 208 57 50 248 02 40 248 02 40	T. P. 133..... Ref. Mon. C-67..... Ref. Mon. 141..... Ref. Mon. 140..... T. P. 131.....	543.9 1,226.4 238.3 305.7 620.4
Ref. Mon. S-62.	47 20 34.19 68 22 22.46	102 39 10 102 39 10 182 04 40 182 04 40	T. P. 114..... Ref. Mon. C-60..... T. P. 113..... Ref. Mon. C-59.....	425.0 888.3 739.0 1,447.2	Ref. Mon. S-71...	47 16 54.51 68 24 35.49	145 06 20 175 55 50 175 55 50	T. P. 135..... T. P. 134..... Ref. Mon. C-67.....	781.6 704.2 1,022.0
Ref. Mon. C-60.	47 20 40.49 68 23 03.75	282 38 40 282 38 40 333 22 40 333 22 40	T. P. 114..... Ref. Mon. S-62..... T. P. 115..... Ref. Mon. S-63.....	463.3 888.3 599.2 1,208.2	Ref. Mon. C-67...	47 17 27.52 68 24 38.94	44 42 40 50 21 40 50 21 40 309 08 40 309 08 40 355 55 40 355 55 40	T. P. 135..... T. P. 136..... Ref. Mon. S-72..... T. P. 133..... Ref. Mon. 142..... T. P. 134..... Ref. Mon. S-71.....	532.4 1,537.5 2,274.8 682.5 1,226.4 317.8 1,022.0
Ref. Mon. S-63.	47 20 05.52 68 22 37.97	48 28 00 48 28 00 153 23 00 153 23 00	T. P. 116..... Ref. Mon. C-62..... T. P. 115..... Ref. Mon. C-60.....	502.0 872.2 609.0 1,208.2	Ref. Mon. S-72...	47 16 40.52 68 26 02.29	116 25 50 116 25 50 137 07 00 137 07 00 170 13 40 170 13 40 214 31 00 230 20 40 230 20 40	T. P. 140..... Ref. Mon. 144..... T. P. 139..... Ref. Mon. C-69..... T. P. 138..... Ref. Mon. C-68..... T. P. 137..... T. P. 136..... Ref. Mon. C-67.....	1,095.1 2,114.8 890.3 2,752.5 475.5 1,442.3 466.2 737.3 2,274.8
Ref. Mon. C-61.	47 20 03.56 68 23 05.01	9 19 40	Ref. Mon. C-62.....	525.0					
Ref. Mon. C-62.	47 19 46.79 68 23 09.06	189 19 40 228 27 30 228 27 30 301 22 10 301 22 10	Ref. Mon. C-61..... T. P. 116..... Ref. Mon. S-63..... T. P. 117..... Ref. Mon. S-64.....	525.0 370.2 872.2 175.9 489.6					
Ref. Mon. S-64.	47 19 38.53 68 22 49.15	29 14 50 29 14 50 121 22 20 121 22 20	T. P. 119..... Ref. Mon. C-64..... T. P. 117..... Ref. Mon. C-62.....	755.1 1,662.4 313.7 489.6					



## REFERENCE MONUMENTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Ref. Mon. C-68	47 17 26.54 68 26 13.94	44 08 40 333 51 30 350 13 30 350 13 30	T. P. 141..... T. P. 137..... T. P. 138..... Ref. Mon. S-72.....	1,328.9 1,155.4 966.8 1,442.3	Ref. Mon. S-79	47 17 35.41 68 31 18.71	80 34 00 80 34 00 127 42 00 127 42 00	T. P. 156..... Ref. Mon. C-75..... T. P. 155..... Ref. Mon. C-74.....	693.5 1,438.6 263.6 583.5
Ref. Mon. 143	47 17 07.84 68 27 16.19	164 43 20 314 30 20 344 43 20	Ref. Mon. C-69..... T. P. 141..... T. P. 142.....	1,215.9 536.6 329.6	Ref. Mon. C-74	47 17 46.97 68 31 40.68	307 41 40 307 41 40 357 25 20	T. P. 155..... Ref. Mon. S-79..... Ref. Mon. S-80.....	319.9 583.5 762.9
Ref. Mon. S-73	47 17 00.08 68 27 33.30	183 11 10 183 11 10	T. P. 143..... Ref. Mon. 144.....	125.8 337.4	Ref. Mon. S-80	47 17 22.29 68 31 39.05	177 25 20	Ref. Mon. C-74.....	762.9
Ref. Mon. 144	47 17 10.99 68 27 32.41	3 11 10 3 11 10 296 24 40 296 24 40	T. P. 143..... Ref. Mon. S-73..... T. P. 140..... Ref. Mon. S-72.....	211.6 337.4 1,019.7 2,114.8	Ref. Mon. C-75	47 17 27.77 68 32 26.25	260 33 10 260 33 10 352 00 30 352 00 30	T. P. 156..... Ref. Mon. S-79..... T. P. 157..... Ref. Mon. S-81.....	745.1 1,438.6 633.5 963.0
Ref. Mon. C-69	47 17 45.82 68 27 31.44	62 25 30 62 25 30 75 27 50 75 27 50 317 06 00 317 06 00 344 43 10 344 43 10	T. P. 144..... Ref. Mon. S-74..... T. P. 145..... Ref. Mon. S-75..... T. P. 139..... Ref. Mon. S-72..... Ref. Mon. 143..... T. P. 142.....	554.9 1,200.3 590.5 2,213.5 1,862.2 2,752.5 1,215.9 1,545.5	Ref. Mon. S-81	47 16 56.89 68 32 19.88	137 34 50 137 34 50 172 00 30 172 00 30	T. P. 158..... Ref. Mon. C-76..... T. P. 157..... Ref. Mon. C-75.....	295.0 906.3 329.5 963.0
Ref. Mon. S-74	47 17 27.82 68 28 22.08	191 19 10 191 19 10 242 24 50 242 24 50	T. P. 146..... Ref. Mon. C-70..... T. P. 144..... Ref. Mon. C-69.....	653.3 1,050.2 645.4 1,200.3	Ref. Mon. S-82	47 16 46.35 68 33 07.22	150 46 40 150 46 40 201 05 30 201 05 30	T. P. 160..... Ref. Mon. C-77..... T. P. 159..... Ref. Mon. C-76.....	373.2 1,128.1 323.9 1,066.0
Ref. Mon. C-70	47 18 01.17 68 28 12.26	11 19 20 11 19 20 51 17 20 51 17 20	T. P. 146..... Ref. Mon. S-74..... T. P. 147..... Ref. Mon. S-75.....	396.9 1,050.2 544.9 1,646.6	Ref. Mon. C-77	47 17 18.23 68 33 33.43	330 46 20 330 46 20	T. P. 160..... Ref. Mon. S-82.....	754.9 1,128.1
Ref. Mon. S-75	47 17 27.82 68 29 13.41	117 10 40 117 10 40 138 39 10 138 39 10 167 21 00 202 11 10 202 11 10 231 16 40 231 16 40 255 26 30 255 26 30	T. P. 150..... Ref. Mon. 151-A..... T. P. 149..... Ref. Mon. C-72..... Ref. Mon. 146..... T. P. 148..... Ref. Mon. 147..... T. P. 147..... Ref. Mon. C-70..... T. P. 145..... Ref. Mon. C-69.....	685.1 1,581.2 431.7 1,905.7 1,243.4 476.1 611.8 1,101.7 1,646.6 1,623.0 2,213.5	Ref. Mon. S-83	47 16 51.08 68 33 50.56	236 44 20 236 44 20	T. P. 161..... Ref. Mon. C-76.....	493.7 1,547.6
Ref. Mon. 145	47 17 53.33 68 28 51.66	71 27 10	Ref. Mon. S-76.....	1,613.6	Ref. Mon. S-84	47 16 51.32 68 34 15.26	133 23 50 143 38 00 169 46 10 169 46 10	T. P. 164..... T. P. 163..... T. P. 162..... Ref. Mon. C-78.....	1,021.5 941.2 717.3 1,038.6
Ref. Mon. 146	47 18 07.11 68 29 26.37	347 20 50	Ref. Mon. S-75.....	1,243.4	Ref. Mon. C-78	47 17 24.41 68 34 24.04	54 44 00 60 08 00 349 46 10 349 46 10	T. P. 163..... T. P. 164..... T. P. 162..... Ref. Mon. S-84.....	457.6 643.2 321.3 1,038.6
Ref. Mon. 147	47 17 46.17 68 29 02.41	22 11 20 22 11 20 77 22 10 77 22 10	T. P. 148..... Ref. Mon. S-75..... T. P. 151..... Ref. Mon. S-76.....	135.7 611.8 1,032.3 1,336.3	Ref. Mon. S-85	47 16 47.72 68 34 46.53	82 50 00 82 50 00 95 53 00 127 46 20	T. P. 166..... Ref. Mon. C-80..... T. P. 165..... Ref. Mon. C-79.....	885.1 1,587.0 800.4 1,053.3
Ref. Mon. S-76	47 17 36.70 68 30 04.47	143 18 30 143 18 30 192 02 50 251 26 10 257 21 30 257 21 30	T. P. 152..... Ref. Mon. 151-A..... Ref. Mon. 149..... Ref. Mon. 145..... T. P. 151..... Ref. Mon. 147.....	363.9 558.7 482.3 1,613.6 304.0 1,336.3	Ref. Mon. C-79	47 17 08.61 68 35 26.15	307 45 50 356 17 40	Ref. Mon. S-85..... T. P. 165.....	1,053.3 564.3
Ref. Mon. 149	47 17 51.98 68 29 59.68	12 02 50	Ref. Mon. S-76.....	482.3	Ref. Mon. C-80	47 16 41.30 68 36 01.45	262 49 10 262 49 10	T. P. 166..... Ref. Mon. S-85.....	701.9 1,587.0
Ref. Mon. C-71	47 18 19.49 68 29 10.45	82 52 40	Ref. Mon. C-72.....	1,331.5	Ref. Mon. S-86	47 16 26.19 68 35 08.44	93 33 40 93 33 40	T. P. 167..... Ref. Mon. C-81.....	557.0 1,589.6
Ref. Mon. C-72	47 18 14.14 68 30 13.34	262 52 00 318 38 20 318 38 20	Ref. Mon. C-71..... T. P. 149..... Ref. Mon. S-75.....	1,331.5 1,474.0 1,905.7	Ref. Mon. C-81	47 16 29.38 68 36 23.92	273 32 40 273 32 40 308 51 20 308 51 20 319 28 40 319 28 40 323 38 00	T. P. 167..... Ref. Mon. S-86..... T. P. 168..... Ref. Mon. S-87..... T. P. 169..... Ref. Mon. S-88..... T. P. 170.....	1,032.6 1,589.6 806.7 1,290.1 905.5 2,142.8 1,082.2
Ref. Mon. 151	47 17 56.98 68 30 18.50	28 13 30	Ref. Mon. S-77.....	602.8	Ref. Mon. S-87	47 16 03.16 68 35 36.12	3 47 40 3 47 40 80 18 20 128 52 00 128 52 00	T. P. 171..... T. P. 172..... T. P. 170..... T. P. 168..... Ref. Mon. C-81.....	706.4 964.4 368.2 483.4 1,290.1
Ref. Mon. 151-A	47 17 51.20 68 30 20.36	297 09 50 297 09 50 323 18 20 323 18 20	T. P. 150..... Ref. Mon. S-75..... T. P. 152..... Ref. Mon. S-76.....	896.1 1,581.2 194.8 558.7	Ref. Mon. S-88	47 15 36.63 68 35 17.70	55 59 30 55 59 30 55 59 30 72 24 50 139 29 30 139 29 30	T. P. 173..... T. P. 174..... Ref. Mon. C-83..... T. P. 172..... T. P. 169..... Ref. Mon. C-81.....	773.6 1,107.0 2,114.2 473.2 1,237.3 2,142.8
Ref. Mon. S-77	47 17 39.78 68 30 32.07	179 34 20 179 34 20 208 13 20	T. P. 153..... Ref. Mon. 153..... Ref. Mon. 151.....	245.9 377.6 602.8	Ref. Mon. C-82	47 15 15.49 68 36 19.79	301 39 50 358 08 00 358 08 00	Ref. Mon. S-89..... T. P. 175..... Ref. Mon. S-90.....	1,597.8 543.7 1,065.4
Ref. Mon. 153	47 17 52.01 68 30 32.20	359 34 20 359 34 20	T. P. 153..... Ref. Mon. S-77.....	131.7 377.6	Ref. Mon. S-89	47 14 48.33 68 35 15.13	121 40 40	Ref. Mon. C-82.....	1,597.8
Ref. Mon. S-78	47 17 39.48 68 30 57.62	152 55 50 152 55 50	T. P. 154..... Ref. Mon. C-73.....	237.8 715.7	Ref. Mon. S-90	47 14 41.01 68 36 18.14	138 00 10 138 00 10 178 08 00 178 08 00	T. P. 176..... Ref. Mon. C-83..... T. P. 175..... Ref. Mon. C-82.....	355.8 719.7 521.7 1,065.4
Ref. Mon. C-73	47 18 00.12 68 31 13.12	332 55 40 332 55 40	T. P. 154..... Ref. Mon. S-78.....	477.9 715.7					

## REFERENCE MONUMENTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
Ref. Mon. C-83	° ' " 47 14 58.33 68 36 41.04	° ' " 235 58 30 235 58 30 235 58 30 317 59 50 317 59 50	T. P. 174 T. P. 173 Ref. Mon. S-88 T. P. 176 Ref. Mon. S-90	1,007.2 1,340.6 2,114.2 363.9 719.7	Ref. Mon. C-91	° ' " 47 14 53.41 68 42 11.51	° ' " 12 27 40 40 36 30 40 36 30	T. P. 196 T. P. 199 Ref. Mon. S-98	1,175.0 1,138.3 1,357.3
Ref. Mon. S-91	47 14 20.68 68 36 56.36	158 45 20 158 45 20	T. P. 177 Ref. Mon. C-84	526.4 1,151.7	Ref. Mon. S-98	47 14 20.04 68 42 53.51	132 29 40 133 13 20 137 39 10 150 26 30 159 38 40 159 38 40 220 36 00 220 36 00 273 22 20 273 22 20 273 22 20	Ref. Mon. C-93 T. P. 201 Ref. Mon. 157 Ref. Mon. C-92 T. P. 200 Ref. Mon. 156 T. P. 199 Ref. Mon. C-91 T. P. 197 T. P. 195 Ref. Mon. S-97	1,446.5 292.0 928.9 1,316.6 243.0 406.5 219.0 1,357.3 413.3 905.9 1,233.3
Ref. Mon. C-84	47 14 55.44 68 37 16.21	27 39 30 27 39 30 338 45 00 338 45 00	T. P. 178 Ref. Mon. S-92 T. P. 177 Ref. Mon. S-91	808.9 1,323.2 625.3 1,151.7	Ref. Mon. C-92	47 14 57.12 68 43 24.40	330 26 10	Ref. Mon. S-98	1,316.6
Ref. Mon. S-92	47 14 17.49 68 37 45.41	133 57 30 133 57 30 179 05 50 179 05 50 207 39 10 207 39 10	T. P. 180 Ref. Mon. C-86 T. P. 179 Ref. Mon. C-85 T. P. 178 Ref. Mon. C-84	682.9 972.2 448.5 745.7 514.3 1,323.2	Ref. Mon. C-93	47 14 51.68 68 43 44.23	312 29 10	Ref. Mon. S-98	1,446.5
Ref. Mon. C-85	47 14 41.63 68 37 45.97	359 05 50 359 05 50	T. P. 179 Ref. Mon. S-92	297.2 745.7	Ref. Mon. 156	47 14 32.38 68 43 00.23	21 30 20 339 38 30 339 38 30	T. P. 201 T. P. 200 Ref. Mon. S-98	194.7 163.5 406.5
Ref. Mon. C-86	47 14 39.34 68 38 18.69	313 57 00 313 57 00	T. P. 180 Ref. Mon. S-92	289.3 972.2	Ref. Mon. 157	47 14 42.27 68 43 23.27	317 38 50	Ref. Mon. S-98	928.9
Ref. Mon. S-93	47 14 16.52 68 38 09.03	130 06 10 130 06 10	T. P. 181 Ref. Mon. C-87	503.4 1,259.5	Ref. Mon. 158	47 14 27.41 68 43 24.62	279 02 10 279 02 10	T. P. 198 Ref. Mon. S-97	1,025.1 1,909.1
Ref. Mon. S-94	47 14 17.56 68 38 47.53	96 43 20 96 43 20 168 50 10 168 50 10	T. P. 184 Ref. Mon. 155 T. P. 182 Ref. Mon. C-87	727.3 1,534.8 157.6 794.2	Ref. Mon. S-99	47 14 08.73 68 43 23.17	90 03 50 90 03 50 100 39 20 100 39 20	T. P. 204 T. P. 205 T. P. 203 Ref. Mon. 160	587.3 896.9 420.5 930.8
Ref. Mon. C-87	47 14 42.79 68 38 54.84	31 13 30 31 13 30 310 05 40 310 05 40 348 50 00 348 50 00	T. P. 183 Ref. Mon. S-95 T. P. 181 Ref. Mon. S-93 T. P. 182 Ref. Mon. S-94	758.1 1,153.1 756.1 1,259.5 636.6 794.2	Ref. Mon. 159	47 14 29.44 68 43 47.01	31 46 00 31 46 00	T. P. 205 Ref. Mon. 162	751.1 1,110.0
Ref. Mon. S-95	47 14 10.86 68 39 23.25	118 42 30 118 42 30 211 13 10 211 13 10	T. P. 185 Ref. Mon. 154 T. P. 183 Ref. Mon. C-87	175.6 358.1 395.0 1,153.1	Ref. Mon. 159-A	47 14 18.97 68 43 33.27	334 56 10 334 56 10	T. P. 202 Ref. Mon. 159-B	50.5 79.4
Ref. Mon. 154	47 14 16.43 68 39 38.19	55 52 50 55 52 50 177 33 40 298 42 20 298 42 20 357 33 40	T. P. 187 Ref. Mon. S-96 Ref. Mon. C-88 T. P. 185 Ref. Mon. S-95 T. P. 186	297.2 1,321.9 839.8 182.5 358.1 184.1	Ref. Mon. 159-B	47 14 16.64 68 43 31.67	154 56 10 154 56 10	T. P. 202 Ref. Mon. 159-A	28.9 79.4
Ref. Mon. C-88	47 14 43.60 68 39 39.89	357 33 40 357 33 40	Ref. Mon. 154 T. P. 186	839.8 1,023.9	Ref. Mon. 160	47 14 14.30 68 44 06.66	280 38 50 280 38 50	T. P. 203 Ref. Mon. S-99	510.3 930.8
Ref. Mon. 155	47 14 23.37 68 40 00.00	33 37 40 33 37 40 276 42 20 276 42 20	T. P. 188 Ref. Mon. S-96 T. P. 184 Ref. Mon. S-94	207.2 1,147.8 807.5 1,534.8	Ref. Mon. 161	47 14 04.95 68 44 31.42	298 11 10 298 11 10	T. P. 206 Ref. Mon. 162	292.8 396.9
Ref. Mon. C-89	47 14 36.80 68 40 10.29	75 00 20 75 00 20 87 00 50 87 00 50	T. P. 189 Ref. Mon. S-97 T. P. 190 T. P. 191	477.3 2,279.6 804.2 1,174.0	Ref. Mon. 162	47 13 58.88 68 44 14.79	118 11 20 118 11 20 211 45 40 211 45 40	T. P. 206 Ref. Mon. 161 T. P. 205 Ref. Mon. 159	104.1 396.9 358.9 1,110.0
Ref. Mon. S-96	47 13 52.42 68 40 30.22	137 12 20 146 51 50 146 51 50 213 37 20 213 37 20 235 52 10 235 52 10	T. P. 193 T. P. 192 Ref. Mon. C-90 T. P. 188 Ref. Mon. 155 T. P. 187 Ref. Mon. 154	1,928.7 1,766.0 2,351.9 940.6 1,147.8 1,024.7 1,321.9	Ref. Mon. 163	47 13 45.50 68 44 35.08	163 14 00 163 14 00	T. P. 207 Ref. Mon. C-94	220.4 1,491.4
Ref. Mon. C-90	47 14 56.18 68 41 31.35	22 41 10 22 41 10 305 23 00 321 06 00 326 51 10 326 51 10	T. P. 194 Ref. Mon. S-97 T. P. 190 T. P. 191 T. P. 192 Ref. Mon. S-96	755.4 1,288.6 1,106.0 847.8 585.9 2,351.9	Ref. Mon. C-94	47 14 31.74 68 44 55.54	343 13 40 343 13 40	T. P. 207 Ref. Mon. 163	1,271.0 1,491.4
Ref. Mon. S-97	47 14 17.69 68 41 54.98	85 48 00 93 23 00 93 23 00 93 23 00 99 03 20 99 03 20 202 41 00 202 41 00 216 39 20 242 47 30 254 59 10 254 59 10	T. P. 196 T. P. 195 T. P. 197 Ref. Mon. S-98 T. P. 198 Ref. Mon. 158 T. P. 194 Ref. Mon. C-90 T. P. 193 T. P. 191 T. P. 189 Ref. Mon. C-89	602.8 327.4 820.0 1,233.3 884.0 1,909.1 533.2 1,288.6 791.3 1,157.4 1,802.3 2,279.6	Ref. Mon. S-100	47 13 27.16 68 44 48.53	118 57 40 118 57 40	T. P. 208 Ref. Mon. C-95	506.7 1,478.5
Ref. Mon. S-101	47 13 20.01 68 45 20.42	146 22 50 146 22 50	T. P. 209 Ref. Mon. C-95	295.7 1,124.8	Ref. Mon. S-102	47 13 13.76 68 45 55.21	105 44 50 105 44 50 133 56 50 185 31 10 185 31 10	T. P. 209 Ref. Mon. C-95 T. P. 210 Ref. Mon. S-102 T. P. 208 Ref. Mon. S-100 T. P. 209 Ref. Mon. S-101	947.4 1,134.9 971.8 1,478.5 829.1 1,124.8
Ref. Mon. C-96	47 13 46.61 68 46 45.25	313 56 10	Ref. Mon. S-102	1,462.0	Ref. Mon. 163-A	47 13 23.51 68 46 45.96	40 36 50 40 36 50 285 44 20 285 44 20	T. P. 211 Ref. Mon. 163-A Ref. Mon. C-96 T. P. 210 Ref. Mon. C-95	335.4 1,109.2 1,462.0 187.5 1,134.9
Ref. Mon. 163-A	47 13 23.51 68 46 45.96	40 36 50 40 36 50 285 44 20 285 44 20	T. P. 212 Ref. Mon. S-103 T. P. 211 Ref. Mon. S-102	296.0 853.1 773.8 1,109.2	Ref. Mon. S-103	47 13 02.54 68 47 12.35	172 39 00 220 36 30 220 36 30	Ref. Mon. C-97 T. P. 212 Ref. Mon. 163-A	617.4 557.1 853.1
Ref. Mon. C-97	47 13 22.36 68 47 16.11	352 39 00	Ref. Mon. S-103	617.4					



## REFERENCE MONUMENTS—ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Ref. Mon. 164...	47 12 55.01 68 48 00.88	135 28 50	Ref. Mon. C-98...	496.7	Ref. Mon. C-102...	47 11 51.91 68 51 20.18	317 31 30 317 31 30	T. P. 222..... Ref. Mon. S-108...	449.3 642.6
Ref. Mon. 165...	47 12 43.79 68 48 18.05	181 03 40 181 03 40 268 49 50	T. P. 213..... Ref. Mon. C-98... Ref. Mon. S-104...	375.9 700.8 382.3	Ref. Mon. S-109...	47 11 21.94 68 51 25.28	86 15 30 86 15 30 144 49 10 144 49 10	T. P. 224..... Ref. Mon. C-105... T. P. 223..... Ref. Mon. C-103...	394.6 1,785.3 140.1 724.2
Ref. Mon. S-104...	47 12 44.04 68 47 59.88	88 50 00	Ref. Mon. 165.....	382.3	Ref. Mon. C-103...	47 11 41.10 68 51 45.10	258 44 00 258 44 00 324 48 50 324 48 50	T. P. 221..... Ref. Mon. S-107... T. P. 223..... Ref. Mon. S-109...	920.7 1,611.6 584.1 724.2
Ref. Mon. C-98...	47 13 06.48 68 48 17.43	1 03 40 1 03 40 315 28 40	T. P. 213..... Ref. Mon. 165... Ref. Mon. 164.....	324.9 700.8 496.7	Ref. Mon. C-104...	47 11 34.26 68 51 58.77	4 39 40 4 39 40	T. P. 225..... Ref. Mon. S-110...	426.4 888.0
Ref. Mon. 166...	47 12 51.37 68 48 32.71	79 14 20 116 24 30	Ref. Mon. 167..... T. P. 214.....	284.5 255.6	Ref. Mon. S-110...	47 11 05.60 68 52 02.20	79 54 30 79 54 30 111 07 30 111 07 30 145 03 40 184 39 40 184 39 40	T. P. 228..... Ref. Mon. 173... T. P. 227..... Ref. Mon. C-105... T. P. 226..... T. P. 225..... Ref. Mon. C-104...	1,191.7 1,908.4 767.0 1,076.7 582.9 461.6 888.0
Ref. Mon. 167...	47 12 49.65 68 48 45.99	84 58 40 84 58 40 196 51 50 259 14 10	T. P. 215..... Ref. Mon. C-99... T. P. 214..... Ref. Mon. 166...	231.3 990.3 174.3 284.5					
Ref. Mon. 168...	47 12 36.27 68 48 43.59	107 28 40 107 28 40	T. P. 216..... Ref. Mon. C-99...	460.9 1,087.2	Ref. Mon. 170...	47 11 08.66 68 52 52.50	46 33 20 46 33 20	T. P. 229..... Ref. Mon. 171...	398.8 677.2
Ref. Mon. C-99...	47 12 46.84 68 49 32.87	8 35 40 8 35 40 264 58 00 264 58 00 287 28 00 287 28 00 317 50 10	T. P. 217..... Ref. Mon. 169... T. P. 215..... Ref. Mon. 167... T. P. 216..... Ref. Mon. 168... Ref. Mon. S-105...	637.7 933.8 759.0 990.3 626.3 1,087.2 1,093.0	Ref. Mon. C-105...	47 11 18.16 68 52 49.90	262 21 40 266 14 30 266 14 30 291 06 50 291 06 50	T. P. 226..... T. P. 224..... Ref. Mon. S-109... T. P. 227..... Ref. Mon. S-110...	676.5 1,390.7 1,785.3 309.7 1,076.7
Ref. Mon. S-105...	47 12 20.60 68 48 58.01	137 50 30	Ref. Mon. C-99...	1,093.0	Ref. Mon. 171...	47 10 53.58 68 53 15.85	226 33 00 226 33 00	T. P. 229..... Ref. Mon. 170...	278.4 677.2
Ref. Mon. 169...	47 12 16.94 68 49 39.50	188 35 30 188 35 30	T. P. 217..... Ref. Mon. C-99...	296.1 933.8	Ref. Mon. C-106...	47 10 59.66 68 53 21.39	15 52 00 15 52 00 278 43 00	T. P. 230..... Ref. Mon. 172... Ref. Mon. S-111...	127.9 508.5 1,372.1
Ref. Mon. S-106...	47 12 00.97 68 49 48.60	103 34 10 103 34 10 160 41 50 160 41 50	T. P. 219..... Ref. Mon. C-101... T. P. 218..... Ref. Mon. C-100...	634.7 1,239.4 443.6 811.0	Ref. Mon. S-111...	47 10 52.92 68 52 16.98	98 43 40	Ref. Mon. C-106...	1,372.1
Ref. Mon. C-100...	47 12 25.76 68 50 01.34	340 41 40 340 41 40	T. P. 218..... Ref. Mon. S-106...	367.4 811.0	Ref. Mon. 172...	47 10 43.82 68 53 27.99	7 50 20 195 52 00 195 52 00 288 32 00	Ref. Mon. S-113... T. P. 230..... Ref. Mon. C-106... Ref. Mon. S-112...	1,254.7 380.6 508.5 896.3
Ref. Mon. S-107...	47 11 51.29 68 50 30.01	78 44 50 78 44 50 150 31 20 150 31 20	T. P. 221..... Ref. Mon. C-103... T. P. 220..... Ref. Mon. C-101...	690.9 1,611.6 287.5 677.4	Ref. Mon. S-112...	47 10 34.59 68 52 47.64	108 32 30	Ref. Mon. 172....	896.3
Ref. Mon. C-101...	47 12 10.38 68 50 45.84	283 33 20 283 33 20 330 31 10 330 31 10	T. P. 219..... Ref. Mon. S-106... T. P. 220..... Ref. Mon. S-107...	604.7 1,239.4 389.9 677.4	Ref. Mon. S-113...	47 10 03.57 68 53 36.12	187 50 10	Ref. Mon. 172....	1,254.7
Ref. Mon. S-108...	47 11 36.56 68 50 59.56	137 31 40 137 31 40	T. P. 222..... Ref. Mon. C-102...	193.3 642.6	Ref. Mon. 173...	47 10 54.76 68 53 31.44	73 16 40 73 16 40 123 16 259 53 20 259 53 20	Ref. Mon. 175..... T. P. 234..... T. P. 231..... T. P. 228..... Ref. Mon. S-110...	647.2 583.6 208.7 716.7 1,908.4

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS DEFINING THE INTERNATIONAL BOUNDARY THROUGH THE ST. FRANCIS RIVER

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 231.....	47 10 58.47 68 53 39.73	73 45 283 46 303 16	T. P. 232..... T. P. 230..... Ref. Mon. 173.....	142.2 361.6 208.7	T. P. 251.....	47 11 24.16 68 55 13.54	175 26 310 37	T. P. 252..... T. P. 250.....	176.2 79.6
T. P. 232.....	47 10 57.18 68 53 46.21	49 40 253 45	T. P. 233..... T. P. 231.....	207.4 142.2	T. P. 252.....	47 11 29.85 68 55 14.20	181 43 355 26	T. P. 253..... T. P. 251.....	250.1 176.2
T. P. 233.....	47 10 52.83 68 53 53.72	39 39 229 40	T. P. 234..... T. P. 232.....	140.9 207.4	T. P. 253.....	47 11 37.94 68 55 13.85	1 43 176 53	T. P. 252..... T. P. 254.....	250.1 119.5
T. P. 234.....	47 10 49.32 68 53 57.99	18 37 73 16 20 219 39 253 16 20	T. P. 235..... Ref. Mon. 175..... T. P. 233..... Ref. Mon. 173.....	294.5 63.6 140.9 583.6	T. P. 254.....	47 11 41.81 68 55 14.16	144 35 356 53	T. P. 255..... T. P. 253.....	78.5 119.5
Ref. Mon. 175.....	47 10 48.73 68 54 00.88	31 28 30 31 28 30 66 39 253 16 20 253 16 20	T. P. 236..... Ref. Mon. S-114..... Ref. Mon. S-115..... T. P. 234..... Ref. Mon. 173.....	252.4 538.4 299.1 63.6 647.2	T. P. 256.....	47 11 50.97 68 55 27.80	112 09 312 10	T. P. 257..... T. P. 255.....	149.6 326.1
T. P. 235.....	47 10 40.28 68 54 02.45	114 46 198 37	T. P. 236..... T. P. 234.....	108.8 294.5	Ref. Mon. C-108.....	47 11 53.47 68 55 30.59	39 40 75 22	Ref. Mon. S-117..... T. P. 257.....	196.7 82.6
T. P. 236.....	47 10 41.76 68 54 07.14	31 28 132 35 211 28 294 46	Ref. Mon. S-114..... T. P. 237..... Ref. Mon. 175..... T. P. 235.....	286.0 159.3 252.4 108.8	T. P. 258.....	47 11 48.91 68 55 38.03	73 06 212 35 288 40	T. P. 259..... T. P. 257..... Ref. Mon. S-117.....	109.0 142.4 32.7
Ref. Mon. S-114.....	47 10 33.86 68 54 14.23	211 28 20 211 28 20	T. P. 236..... Ref. Mon. 175.....	286.0 538.4	Ref. Mon. S-117.....	47 11 48.57 68 55 36.56	108 40 219 40	T. P. 258..... Ref. Mon. C-108.....	32.7 196.7
T. P. 237.....	47 10 45.25 68 54 12.71	66 38 159 22 246 38 312 35	Ref. Mon. S-115..... T. P. 238..... Ref. Mon. 175..... T. P. 236.....	27.8 74.9 271.3 159.3	T. P. 259.....	47 11 47.88 68 55 42.98	103 25 253 06	T. P. 260..... T. P. 258.....	37.9 109.0
Ref. Mon. S-115.....	47 10 44.89 68 54 13.92	246 38 246 38	T. P. 237..... Ref. Mon. 175.....	27.8 299.1	T. P. 260.....	47 11 48.17 68 55 44.74	134 06 283 25	T. P. 261..... T. P. 259.....	158.9 37.9
T. P. 238.....	47 10 47.52 68 54 13.96	122 49 339 22	T. P. 239..... T. P. 237.....	148.1 74.9	T. P. 261.....	47 11 51.75 68 55 50.16	228 54 314 06	T. P. 262..... T. P. 260.....	190.6 158.9
T. P. 239.....	47 10 50.12 68 54 19.88	162 25 302 49	T. P. 240..... T. P. 238.....	135.7 148.1	T. P. 262.....	47 11 55.81 68 55 43.34	48 54 137 12	T. P. 261..... T. P. 263.....	190.6 113.9
T. P. 240.....	47 10 54.31 68 54 21.82	136 00 342 25	T. P. 241..... T. P. 239.....	85.4 135.7	T. P. 263.....	47 11 58.51 68 55 47.02	95 11 317 12	T. P. 264..... T. P. 262.....	289.7 113.9
T. P. 241.....	47 10 56.30 68 54 24.64	158 22 316 00	T. P. 242..... T. P. 240.....	240.5 85.4	T. P. 264.....	47 11 59.36 68 56 00.72	117 28 275 11	T. P. 265..... T. P. 263.....	105.2 289.7
T. P. 242.....	47 11 03.54 68 54 28.85	179 04 338 22	T. P. 243..... T. P. 241.....	135.3 240.5	T. P. 265.....	47 12 00.93 68 56 05.15	163 53 297 28	T. P. 266..... T. P. 264.....	127.2 105.2
T. P. 243.....	47 11 07.92 68 54 28.96	142 19 359 04	T. P. 244..... T. P. 242.....	129.9 135.3	T. P. 266.....	47 12 04.89 68 56 06.83	147 49 343 53	T. P. 267..... T. P. 265.....	125.2 127.2
T. P. 244.....	47 11 11.25 68 54 32.73	73 56 322 19	T. P. 245..... T. P. 243.....	146.6 129.9	T. P. 267.....	47 12 08.32 68 56 10.00	135 18 327 49	T. P. 268..... T. P. 266.....	109.5 125.2
T. P. 245.....	47 11 09.93 68 54 39.42	113 20 253 56	T. P. 246..... T. P. 244.....	136.3 146.6	T. P. 268.....	47 12 10.84 68 56 13.66	101 57 123 27 315 18	Ref. Mon. S-118..... T. P. 269..... T. P. 267.....	68.4 141.2 109.5
T. P. 246.....	47 11 11.68 68 54 45.37	141 24 293 20	T. P. 247..... T. P. 245.....	169.4 136.3	Ref. Mon. S-118.....	47 12 11.30 68 56 16.84	209 22 281 57	Ref. Mon. C-109..... T. P. 268.....	180.0 68.4
T. P. 247.....	47 11 15.97 68 54 50.39	84 07 128 35 264 07 321 24	Ref. Mon. S-116..... T. P. 248..... Ref. Mon. C-107..... T. P. 246.....	59.6 164.5 37.1 169.4	T. P. 269.....	47 12 13.36 68 56 19.26	135 02 236 09 303 27	T. P. 270..... Ref. Mon. C-109..... T. P. 268.....	143.9 167.4 141.2
Ref. Mon. S-116.....	47 11 15.77 68 54 53.21	264 07 264 07	T. P. 247..... Ref. Mon. C-107.....	59.6 96.7	Ref. Mon. C-109.....	47 12 16.38 68 56 12.65	29 22 56 09	Ref. Mon. S-118..... T. P. 269.....	180.0 167.4
Ref. Mon. C-107.....	47 11 16.09 68 54 48.64	84 07 84 07	T. P. 247..... Ref. Mon. S-116.....	37.1 96.7	T. P. 270.....	47 12 16.66 68 56 24.09	143 45 315 02	T. P. 271..... T. P. 269.....	215.6 143.9
T. P. 248.....	47 11 19.29 68 54 56.50	119 02 308 35	T. P. 249..... T. P. 247.....	236.1 164.5	T. P. 271.....	47 12 22.29 68 56 30.15	90 50 323 45	T. P. 272..... T. P. 270.....	117.1 215.6
T. P. 249.....	47 11 23.00 68 55 06.31	80 07 299 02	T. P. 250..... T. P. 248.....	93.2 236.1	T. P. 272.....	47 12 22.34 68 56 35.71	52 03 270 50	T. P. 273..... T. P. 271.....	474.0 117.1
T. P. 250.....	47 11 22.49 68 55 10.67	130 37 260 07	T. P. 251..... T. P. 249.....	79.6 93.2	T. P. 273.....	47 12 12.90 68 56 53.47	47 49 232 03	T. P. 274..... T. P. 272.....	218.6 474.0



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 274.....	47 12 08.15 68 57 01.16	79 05 227 49	T. P. 275.....	85.5	Ref. Mon. C-113.	47 14 04.72 69 00 34.48	343 33 10 343 33 10	T. P. 297.....	416.2
T. P. 275.....	47 12 07.63 68 57 05.16	130 22 259 05	T. P. 276.....	116.6	Ref. Mon. S-121.	47 13 41.47 69 00 24.41	163 33 20 163 33 20 290 25 30	Ref. Mon. S-121.....	748.4
T. P. 276.....	47 12 10.07 68 57 09.37	102 32 169 46 310 22	Ref. Mon. S-119.....	75.4	T. P. 298.....	47 14 12.64 69 01 21.30	126 39 300 16 40	T. P. 297.....	332.2
Ref. Mon. S-119.	47 12 10.60 68 57 12.87	218 03 282 32	T. P. 277.....	150.4	T. P. 299.....	47 14 22.02 69 01 39.80	106 35 306 39	Ref. Mon. C-113.....	748.4
T. P. 277.....	47 12 14.86 68 57 10.64	192 25 349 46	T. P. 278.....	116.3	T. P. 300.....	47 14 24.25 69 01 50.78	100 06 286 35	Ref. Mon. C-112.....	2,529.5
T. P. 278.....	47 12 18.54 68 57 09.46	12 25 173 41 253 02	T. P. 279.....	89.1	T. P. 301.....	47 14 25.84 69 02 03.91	132 39 138 23 280 06 312 39	T. P. 299.....	484.9
Ref. Mon. C-110.	47 12 20.10 68 57 01.96	38 03 73 02	Ref. Mon. C-110.....	164.9	Ref. Mon. S-122.	47 14 17.56 69 01 50.71	132 39 40 132 39 40	T. P. 300.....	241.1
T. P. 279.....	47 12 21.41 68 57 09.92	154 20 353 41	T. P. 280.....	130.9	Ref. Mon. S-123.	47 14 29.31 69 02 09.44	162 15 312 39 20 312 39 20	T. P. 298.....	484.9
T. P. 280.....	47 12 25.23 68 57 12.62	80 19 334 20	T. P. 281.....	72.5	T. P. 302.....	47 14 28.04 69 02 06.78	168 15 318 23	T. P. 301.....	280.4
T. P. 281.....	47 12 24.84 68 57 16.01	70 11 260 19	T. P. 282.....	123.9	T. P. 303.....	47 14 31.25 69 02 07.76	121 44 348 15	T. P. 299.....	241.1
T. P. 282.....	47 12 23.48 68 57 21.55	60 48 250 11	T. P. 283.....	160.3	T. P. 304.....	47 14 32.58 69 02 10.91	111 02 301 44	T. P. 302.....	241.1
T. P. 283.....	47 12 20.94 68 57 28.20	76 53 240 48	T. P. 284.....	219.4	T. P. 305.....	47 14 34.17 69 02 17.00	133 58 215 04 291 02	Ref. Mon. S-123.....	158.0
T. P. 284.....	47 12 19.33 68 57 38.35	118 03 256 53	T. P. 285.....	101.6	Ref. Mon. C-114.	47 14 37.68 69 02 13.38	35 04 342 15	T. P. 303.....	91.0
T. P. 285.....	47 12 20.88 68 57 42.62	149 15 298 03	T. P. 286.....	93.3	T. P. 306.....	47 14 42.43 69 02 29.58	147 20 313 58	T. P. 304.....	137.1
T. P. 286.....	47 12 23.48 68 57 44.88	161 03 329 15	T. P. 287.....	389.1	T. P. 307.....	47 14 47.11 69 02 33.99	152 46 00 327 20	T. P. 305.....	78.0
T. P. 287.....	47 12 35.39 68 57 50.89	117 25 341 03	T. P. 288.....	111.6	T. P. 308.....	47 15 01.93 69 02 45.19	147 25 332 45 50	T. P. 306.....	101.1
T. P. 288.....	47 12 37.06 68 57 55.60	160 59 297 25	T. P. 289.....	118.4	T. P. 309.....	47 15 05.31 69 02 48.36	59 53 148 22 20 327 25	T. P. 307.....	91.0
T. P. 289.....	47 12 40.68 68 57 57.43	180 53 340 59	T. P. 290.....	148.6	Ref. Mon. S-124.	47 15 04.75 69 02 49.78	161 22 50 239 53	T. P. 308.....	137.1
T. P. 290.....	47 12 45.50 68 57 57.32	0 53 123 47	T. P. 291.....	177.1	T. P. 310.....	47 15 23.71 69 03 05.02	181 32 233 50 328 22 10	Ref. Mon. S-124.....	34.5
T. P. 291.....	47 12 48.68 68 58 04.32	111 10 218 53 303 47	T. P. 292.....	383.0	Ref. Mon. C-115.	47 15 26.05 69 03 00.32	53 50 161 43	T. P. 309.....	667.4
Ref. Mon. C-111.	47 12 50.10 68 58 02.65	38 53 60 28	Ref. Mon. C-111.....	56.1	T. P. 311.....	47 15 37.04 69 03 04.49	1 32 61 30 195 38	Ref. Mon. C-115.....	124.0
T. P. 292.....	47 12 53.16 68 58 21.30	135 47 291 10 357 43	T. P. 293.....	322.4	Ref. Mon. S-125.	47 15 36.68 69 03 05.48	241 30 341 43	T. P. 310.....	694.1
Ref. Mon. S-120.	47 12 43.13 68 58 20.71	177 43 240 28	T. P. 294.....	310.1	T. P. 312.....	47 15 40.25 69 03 03.18	15 38 199 18	T. P. 311.....	34.5
T. P. 293.....	47 13 00.65 68 58 31.98	111 00 315 47	Ref. Mon. C-111.....	436.8	T. P. 313.....	47 15 42.50 69 03 02.02	19 18 216 19	T. P. 312.....	411.8
T. P. 294.....	47 13 04.12 68 58 45.27	152 58 226 30 291 00	T. P. 295.....	301.2	T. P. 314.....	47 15 45.33 69 02 58.96	36 19 219 33 345 07	Ref. Mon. S-125.....	122.3
Ref. Mon. C-112.	47 13 12.87 68 58 31.74	46 30 110 26 50	Ref. Mon. C-112.....	392.4	Ref. Mon. C-116.	47 15 44.37 69 02 58.58	165 07 187 12 30	T. P. 313.....	345.7
T. P. 295.....	47 13 12.81 68 58 51.78	122 51 10 332 58	T. P. 296.....	711.0	T. P. 315.....	47 15 48.12 69 02 55.58	39 33 161 17	T. P. 314.....	411.8
T. P. 296.....	47 13 25.30 68 59 20.17	119 30 50 302 50 50	T. P. 297.....	1,660.7	T. P. 316.....	47 15 53.52 69 02 58.27	205 13 341 17	Ref. Mon. C-116.....	122.3
T. P. 297.....	47 13 51.79 69 00 28.88	120 17 20 163 33 299 30 00 343 33	Ref. Mon. S-121.....	332.2				T. P. 315.....	23.6

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° / ' "	° / ' "				° / ' "	° / ' "		
T. P. 317.....	47 16 02.53 69 02 52.04	25 13 109 36 159 04	T. P. 316..... Ref. Mon. S-126..... T. P. 318.....	307.4 67.6 169.4	Ref. Mon. C-122.....	47 17 36.73 69 03 08.35	342 02 50 342 02 50 342 02 50	Ref. Mon. C-121..... T. P. 336..... T. P. 335.....	565.8 122.1 484.3
Ref. Mon. S-126.....	47 16 03.26 69 02 55.07	7 12 30 289 36	Ref. Mon. C-116..... T. P. 317.....	588.0 67.6	T. P. 336.....	47 17 32.97 69 03 06.56	95 33 162 03 342 03 342 03	T. P. 337..... Ref. Mon. C-122..... T. P. 335..... Ref. Mon. C-121.....	126.1 122.1 362.2 443.7
T. P. 318.....	47 16 07.65 69 02 54.92	156 28 339 04	T. P. 319..... T. P. 317.....	89.4 169.4	T. P. 337.....	47 17 33.37 69 03 12.53	149 12 275 33	T. P. 338..... T. P. 336.....	41.2 126.1
T. P. 319.....	47 16 10.30 69 02 56.62	210 36 336 28	T. P. 320..... T. P. 318.....	120.6 89.4	T. P. 338.....	47 17 34.51 69 03 13.54	179 29 329 12	T. P. 339..... T. P. 337.....	78.7 41.2
T. P. 320.....	47 16 13.66 69 02 53.70	30 36 202 48 217 00	T. P. 319..... T. P. 321..... Ref. Mon. C-117.....	120.6 148.4 60.1	T. P. 339.....	47 17 37.06 69 03 13.57	196 14 359 29	T. P. 340..... T. P. 338.....	113.0 78.7
Ref. Mon. C-117.....	47 16 15.22 69 02 51.98	37 00 170 34	T. P. 320..... Ref. Mon. C-118.....	60.1 350.3	T. P. 340.....	47 17 40.57 69 03 12.06	16 14 175 59 263 59	T. P. 339..... T. P. 341..... Ref. Mon. C-123.....	113.0 111.4 46.0
T. P. 321.....	47 16 18.09 69 02 50.97	22 48 161 52	T. P. 320..... T. P. 322.....	148.4 208.3	Ref. Mon. C-123.....	47 17 40.73 69 03 09.89	83 59 173 58 345 21	T. P. 340..... Ref. Mon. C-124..... Ref. Mon. C-122.....	46.0 113.2 127.8
T. P. 322.....	47 16 24.04 69 02 55.64	178 09 331 52	T. P. 323..... T. P. 321.....	111.8 208.3	T. P. 341.....	47 17 44.17 69 03 12.44	169 17 261 14 355 59	T. P. 342..... Ref. Mon. C-124..... T. P. 340.....	107.0 42.2 111.4
T. P. 323.....	47 16 27.66 69 02 55.81	149 14 184 48 329 14 358 09	Ref. Mon. S-127..... T. P. 324..... Ref. Mon. C-118..... T. P. 322.....	78.2 96.8 45.1 111.8	Ref. Mon. C-124.....	47 17 44.38 69 03 10.45	81 14 353 58	T. P. 341..... Ref. Mon. C-123.....	42.2 113.2
Ref. Mon. S-127.....	47 16 29.84 69 02 57.71	177 25 329 14 329 14	Ref. Mon. C-119..... T. P. 323..... Ref. Mon. C-118.....	140.6 78.2 123.3	T. P. 342.....	47 17 47.57 69 03 13.38	159 52 349 17	T. P. 343..... T. P. 341.....	87.4 107.0
Ref. Mon. C-118.....	47 16 26.41 69 02 54.71	149 14 149 14	T. P. 323..... Ref. Mon. S-127.....	45.1 123.3	T. P. 343.....	47 17 50.23 69 03 14.82	184 36 339 52	T. P. 344..... T. P. 342.....	57.3 87.4
T. P. 324.....	47 16 30.78 69 02 55.43	4 48 158 47	T. P. 323..... T. P. 325.....	96.8 77.3	T. P. 344.....	47 17 52.08 69 03 14.60	4 36 195 05	T. P. 343..... T. P. 345.....	57.3 95.3
T. P. 325.....	47 16 33.12 69 02 56.76	92 01 146 13 338 47	T. P. 326..... Ref. Mon. C-119..... T. P. 324.....	62.3 47.2 77.3	T. P. 345.....	47 17 55.06 69 03 13.42	15 05 30 17 210 17 258 18	T. P. 344..... Ref. Mon. S-130..... Ref. Mon. S-131..... T. P. 346.....	95.3 105.5 79.7 120.4
Ref. Mon. C-119.....	47 16 34.39 69 02 58.01	326 13 357 25	T. P. 325..... Ref. Mon. S-127.....	47.2 140.6	Ref. Mon. S-130.....	47 17 52.11 69 03 15.95	210 17 210 17	T. P. 345..... Ref. Mon. S-131.....	105.5 185.2
T. P. 326.....	47 16 33.19 69 02 59.72	159 13 272 01	T. P. 327..... T. P. 325.....	320.5 62.3	Ref. Mon. S-131.....	47 17 57.29 69 03 11.50	30 17 30 17 232 18	T. P. 345..... Ref. Mon. S-130..... Ref. Mon. C-125.....	79.7 185.2 229.4
T. P. 327.....	47 16 42.90 69 03 05.14	92 11 174 46 339 13	Ref. Mon. S-128..... T. P. 328..... T. P. 326.....	92.8 181.1 320.5	T. P. 346.....	47 17 55.85 69 03 07.81	78 18 217 05	T. P. 345..... T. P. 347.....	120.4 110.8
Ref. Mon. S-128.....	47 16 43.01 69 03 09.55	206 33 272 11	Ref. Mon. C-120..... T. P. 327.....	248.0 92.8	T. P. 347.....	47 17 58.71 69 03 04.63	37 05 158 41	T. P. 346..... T. P. 348.....	110.8 132.3
T. P. 328.....	47 16 48.73 69 03 05.92	188 57 354 46	T. P. 329..... T. P. 327.....	61.0 181.1	T. P. 348.....	47 18 02.71 69 03 06.92	191 30 287 41 338 41	T. P. 349..... Ref. Mon. C-125..... T. P. 347.....	217.1 89.2 132.3
T. P. 329.....	47 16 50.69 69 03 05.47	8 57 182 57 301 15	T. P. 328..... T. P. 330..... Ref. Mon. C-120.....	61.0 87.5 29.5	Ref. Mon. C-125.....	47 18 01.83 69 03 02.87	52 18 107 41	Ref. Mon. S-131..... T. P. 348.....	229.4 89.2
Ref. Mon. C-120.....	47 16 50.19 69 03 04.27	26 33 121 15	Ref. Mon. S-128..... T. P. 329.....	248.0 29.5	T. P. 349.....	47 18 09.59 69 03 04.86	11 30 180 00	T. P. 348..... T. P. 350.....	217.1 155.3
T. P. 330.....	47 16 53.52 69 03 05.26	2 57 222 28	T. P. 329..... T. P. 331.....	87.5 109.1	T. P. 350.....	47 18 14.62 69 03 04.86	0 00 103 17 215 25	T. P. 349..... Ref. Mon. S-132..... T. P. 351.....	155.3 85.6 107.9
T. P. 331.....	47 16 56.12 69 03 01.75	42 28 200 28	T. P. 330..... T. P. 332.....	109.1 139.5	Ref. Mon. S-132.....	47 18 15.26 69 03 08.82	140 27 283 17	Ref. Mon. S-133..... T. P. 350.....	255.1 85.6
T. P. 332.....	47 17 00.36 69 02 59.43	20 28 111 52 162 46	T. P. 331..... Ref. Mon. S-129..... T. P. 333.....	139.5 65.0 152.9	T. P. 351.....	47 18 17.47 69 03 01.88	35 25 201 24	T. P. 350..... T. P. 352.....	107.9 131.6
Ref. Mon. S-129.....	47 17 01.14 69 03 02.30	184 48 20 291 52	Ref. Mon. C-121..... T. P. 332.....	563.0 65.0	T. P. 352.....	47 18 21.44 69 02 59.60	21 24 90 58 158 02 00	T. P. 351..... Ref. Mon. S-133..... T. P. 353.....	131.6 356.1 1,136.4
T. P. 333.....	47 17 05.08 69 03 01.58	179 51 342 46	T. P. 334..... T. P. 332.....	380.6 152.9	Ref. Mon. S-133.....	47 18 21.63 69 03 16.55	270 58 320 27	T. P. 352..... Ref. Mon. S-132.....	356.1 255.1
T. P. 334.....	47 17 17.41 69 03 01.63	183 22 359 51	T. P. 335..... T. P. 333.....	136.1 380.6	T. P. 353.....	47 18 55.56 69 03 19.85	183 12 20 266 18 338 01 50	T. P. 354..... Ref. Mon. C-126..... T. P. 352.....	1,287.8 409.5 1,136.4
T. P. 335.....	47 17 21.81 69 03 01.25	3 22 162 03 162 03 342 03	T. P. 334..... T. P. 336..... Ref. Mon. C-122..... Ref. Mon. C-121.....	136.1 362.2 484.3 81.5	Ref. Mon. C-126.....	47 18 56.42 69 03 00.40	17 31 00 86 18	Ref. Mon. S-133..... T. P. 353.....	1,126.8 409.5
Ref. Mon. C-121.....	47 17 19.30 69 03 00.05	162 02 50 162 02 50 162 02 50	Ref. Mon. C-122..... T. P. 335..... T. P. 336.....	565.8 81.5 443.7					



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
T. P. 354.....	47 19 37.20 69 03 16.43	3 12 20 110 01 181 05 30 290 01	T. P. 353..... Ref. Mon. S-134... T. P. 355..... Ref. Mon. C-127..	1,287.8 410.0 1,528.4 348.5	T. P. 370.....	47 22 58.20 69 02 41.23	163 58 273 46 339 35	T. P. 369..... T. P. 371..... Ref. Mon. C-133..	136.5 150.8 180.8
Ref. Mon. S-134..	47 19 41.75 69 03 34.78	290 01 10 290 01 10	T. P. 354..... Ref. Mon. C-127..	410.0 758.5	Ref. Mon. C-133..	47 22 52.71 69 02 38.22	124 06 159 35 217 30 20	Ref. Mon. C-132.. T. P. 370..... Ref. Mon. C-134..	280.1 180.8 586.9
Ref. Mon. C-127..	47 19 33.34 69 03 00.84	110 01 40 110 01 40	Ref. Mon. S-134 .. T. P. 354.....	758.5 348.5	T. P. 371.....	47 22 57.88 69 02 34.05	93 46 245 03	T. P. 370..... T. P. 372.....	150.8 119.9
T. P. 355.....	47 20 26.68 69 03 15.05	1 05 30 119 44 50 179 33 00 299 44 50	T. P. 354..... Ref. Mon. S-135... T. P. 356..... Ref. Mon. C-128..	1,528.4 606.6 2,783.4 504.4	T. P. 372.....	47 22 59.51 69 02 28.87	65 03 213 02	T. P. 371..... T. P. 373.....	119.9 147.0
Ref. Mon. S-135..	47 20 36.42 69 03 40.14	299 44 30 299 44 30	T. P. 355..... Ref. Mon. C-128..	606.6 1,111.0	T. P. 373.....	47 23 03.50 69 02 25.05	33 02 169 24	T. P. 372..... T. P. 374.....	147.0 204.0
Ref. Mon. C-128..	47 20 18.57 69 02 54.19	119 45 00 119 45 00	T. P. 355..... Ref. Mon. S-135... T. P. 356.....	504.4 1,111.0 734.8	T. P. 374.....	47 23 10.00 69 02 26.84	123 12 299 53 349 24	T. P. 375..... Ref. Mon. C-134.. T. P. 373.....	313.7 136.7 204.0
T. P. 356.....	47 21 56.80 69 03 16.10	42 04 30 102 58 10 177 51 10 282 58 10 359 33 00	Ref. Mon. S-136... Ref. Mon. S-137... T. P. 357..... Ref. Mon. C-129... T. P. 355.....	734.8 586.9 1,208.4 427.1 2,783.4	Ref. Mon. C-134..	47 23 07.79 69 02 21.19	37 30 30 119 53	Ref. Mon. C-133.. T. P. 374.....	586.9 136.7
Ref. Mon. S-136..	47 21 39.14 69 03 39.56	173 16 30 222 04 10	Ref. Mon. S-137... T. P. 356.....	681.8 734.8	T. P. 375.....	47 23 15.56 69 02 39.36	141 54 303 12	T. P. 376..... T. P. 377.....	155.4 313.7
Ref. Mon. S-137..	47 22 01.06 69 03 43.36	282 57 50 282 57 50	T. P. 356..... Ref. Mon. C-129...	586.9 1,014.0	T. P. 376.....	47 23 19.52 69 02 43.93	161 34 321 54	T. P. 377..... T. P. 378.....	190.7 155.4
Ref. Mon. C-129..	47 21 53.69 69 02 56.27	102 58 20 102 58 20	T. P. 356..... Ref. Mon. S-137... T. P. 357.....	427.1 1,014.0 39.1	T. P. 377.....	47 23 25.38 69 02 46.81	182 36 341 34	T. P. 378..... T. P. 379..... Ref. Mon. C-135..	192.1 190.7 192.1
T. P. 357.....	47 22 35.90 69 03 18.26	118 10 30 165 10 298 10 30 357 51 00	Ref. Mon. S-137-A T. P. 358..... Ref. Mon. C-130... T. P. 356.....	39.1 135.2 551.6 1,208.4	T. P. 378.....	47 23 31.59 69 02 46.39	2 36 186 22 315 28	T. P. 377..... T. P. 379..... Ref. Mon. C-135..	192.1 109.2 107.5
Ref. Mon. S-137-A.	47 22 36.50 69 03 19.90	236 44 10 298 10 30 298 10 30	Ref. Mon. C-131... T. P. 357..... Ref. Mon. C-130... T. P. 356.....	537.5 39.1 590.7 551.6	Ref. Mon. C-135..	47 23 29.11 69 02 42.80	135 28 184 17	T. P. 378..... Ref. Mon. C-136..	107.5 272.4
Ref. Mon. C-130..	47 22 27.47 69 02 55.08	118 10 50 118 10 50	T. P. 357..... Ref. Mon. S-137-A T. P. 359..... T. P. 357.....	590.7 590.7 159.5 135.2	T. P. 379.....	47 23 35.10 69 02 45.82	6 22 201 12	T. P. 379..... T. P. 380..... Ref. Mon. C-136..	109.2 109.5 203.7
T. P. 358.....	47 22 40.13 69 03 19.91	230 10 345 10	T. P. 359..... T. P. 357.....	159.5 135.2	T. P. 380.....	47 23 38.41 69 02 43.93	21 12 210 42 289 19	T. P. 379..... T. P. 381..... Ref. Mon. C-136..	109.5 203.7 46.7
T. P. 359.....	47 22 43.44 69 03 14.07	50 10 277 52	T. P. 358..... T. P. 360.....	159.5 82.5	Ref. Mon. C-136..	47 23 37.91 69 02 41.83	4 17 109 19 229 58	Ref. Mon. C-135.. T. P. 380..... Ref. Mon. C-137..	272.4 46.7 286.5
T. P. 360.....	47 22 43.08 69 03 10.18	97 52 295 05	T. P. 359..... T. P. 361.....	82.5 81.2	T. P. 381.....	47 23 44.08 69 02 38.97	30 42 170 45	T. P. 380..... T. P. 382.....	203.7 80.2
T. P. 361.....	47 22 41.96 69 03 06.67	115 05 247 55	T. P. 360..... T. P. 362.....	81.2 96.0	T. P. 382.....	47 23 46.64 69 02 39.59	159 58 350 45	T. P. 383..... T. P. 381.....	79.4 80.2
T. P. 362.....	47 22 43.13 69 03 02.43	67 55 204 44	T. P. 361..... T. P. 363.....	96.0 90.8	T. P. 383.....	47 23 49.06 69 02 40.89	197 50 339 58	T. P. 384..... T. P. 382.....	66.6 79.4
T. P. 363.....	47 22 45.80 69 03 00.62	24 44 175 32 260 18	T. P. 362..... T. P. 364..... Ref. Mon. C-131..	90.8 76.9 45.5	T. P. 384.....	47 23 51.11 69 02 39.91	17 50 238 44	T. P. 383..... T. P. 385.....	66.6 49.7
Ref. Mon. C-131..	47 22 46.05 69 02 58.48	80 18 208 00	T. P. 363..... Ref. Mon. C-132..	45.5 410.9	T. P. 385.....	47 23 51.95 69 02 37.89	58 44 298 26	T. P. 384..... T. P. 386.....	49.7 210.7
T. P. 364.....	47 22 48.29 69 03 00.91	138 37 355 32	T. P. 365..... T. P. 363.....	147.2 76.9	T. P. 386.....	47 23 48.70 69 02 29.05	118 26 344 01	T. P. 385..... T. P. 387.....	210.7 145.9
T. P. 365.....	47 22 51.86 69 03 05.54	236 54 318 37	T. P. 366..... T. P. 364.....	215.7 147.2	Ref. Mon. C-137..	47 23 43.88 69 02 31.37	49 58 246 44 264 30	Ref. Mon. C-137.. T. P. 386..... T. P. 388.....	89.3 145.9 77.3
T. P. 366.....	47 22 55.67 69 02 56.93	56 54 206 21	T. P. 365..... T. P. 367.....	215.7 172.5	T. P. 387.....	47 23 44.16 69 02 27.13	84 30 164 01 278 29	Ref. Mon. C-137.. T. P. 386..... T. P. 388.....	89.3 145.9 77.3
T. P. 367.....	47 23 00.68 69 02 53.28	26 21 247 21 316 43	T. P. 366..... T. P. 368..... Ref. Mon. C-132..	172.5 133.7 122.2	Ref. Mon. C-137..	47 23 43.88 69 02 31.37	49 58 246 44 264 30	Ref. Mon. C-136.. Ref. Mon. S-138... T. P. 387.....	286.5 218.1 89.3
Ref. Mon. C-132..	47 22 57.80 69 02 49.28	28 00 136 43 304 06	Ref. Mon. C-131.. T. P. 367..... Ref. Mon. C-133..	410.9 122.2 280.1	T. P. 388.....	47 23 43.79 69 02 23.48	98 29 201 29 217 40	T. P. 387..... Ref. Mon. S-138... T. P. 389.....	77.3 95.3 202.9
T. P. 368.....	47 23 02.35 69 02 47.39	67 21 268 07	T. P. 367..... T. P. 369.....	133.7 91.6	Ref. Mon. S-138..	47 23 46.66 69 02 21.82	21 29 66 44	T. P. 388..... Ref. Mon. C-137..	95.3 218.1
T. P. 369.....	47 23 02.44 69 02 43.03	88 07 343 58	T. P. 368..... T. P. 370.....	91.6 136.5	T. P. 389.....	47 23 48.99 69 02 17.57	37 40 152 47 264 21	T. P. 388..... T. P. 390..... Ref. Mon. C-138..	202.9 66.7 145.0
					Ref. Mon. C-138..	47 23 49.45 69 02 10.69	84 21 175 09	T. P. 389..... Ref. Mon. C-139..	145.0 313.9
					T. P. 390.....	47 23 50.91 69 02 19.03	102 26 332 47	T. P. 391..... T. P. 389.....	81.7 66.7

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 391.....	47 23 51.48 69 02 22.83	75 08 282 26	T. P. 392..... T. P. 390.....	101.4 81.7	T. P. 414.....	47 24 21.30 69 02 30.71	77 18 277 53	T. P. 413..... T. P. 415.....	37.3 32.1
T. P. 392.....	47 23 50.64 69 02 27.51	132 00 255 08	T. P. 393..... T. P. 391.....	155.1 101.4	T. P. 415.....	47 24 21.16 69 02 29.20	97 53 286 01	T. P. 414..... T. P. 416.....	32.1 36.6
T. P. 393.....	47 23 54.00 69 02 33.00	160 38 312 00	T. P. 394..... T. P. 392.....	199.7 155.1	T. P. 416.....	47 24 20.83 69 02 27.52	106 01 315 06	T. P. 415..... T. P. 417.....	36.6 77.6
T. P. 394.....	47 24 00.10 69 02 36.16	179 55 340 38	T. P. 395..... T. P. 393.....	227.0 199.7	T. P. 417.....	47 24 19.05 69 02 24.91	14 09 135 06	T. P. 418..... T. P. 416.....	105.5 77.6
T. P. 395.....	47 24 07.45 69 02 36.18	183 29 277 31 359 55	Ref. Mon. S-139... T. P. 396..... T. P. 394.....	65.1 106.3 227.0	T. P. 418.....	47 24 15.74 69 02 26.14	194 09 328 58	T. P. 417..... T. P. 419.....	105.5 71.8
Ref. Mon. S-139...	47 24 09.55 69 02 35.99	3 29 180 38 254 35	T. P. 395..... Ref. Mon. S-140... Ref. Mon. C-140...	65.1 203.7 284.8	T. P. 419.....	47 24 13.75 69 02 24.37	148 58 270 42 330 14	T. P. 418..... T. P. 420..... Ref. Mon. C-140...	71.8 155.4 62.1
T. P. 396.....	47 24 07.00 69 02 31.15	97 31 354 11	T. P. 395..... T. P. 397.....	106.3 74.1	T. P. 420.....	47 24 13.68 69 02 16.96	90 42 301 09	T. P. 419..... T. P. 421.....	155.4 131.8
T. P. 397.....	47 24 04.61 69 02 30.79	174 11 334 12	T. P. 396..... T. P. 398.....	74.1 77.9	T. P. 421.....	47 24 11.48 69 02 11.58	121 09 270 53	T. P. 420..... T. P. 422.....	131.8 124.2
T. P. 398.....	47 24 02.34 69 02 29.18	154 12 299 43	T. P. 397..... T. P. 399.....	77.9 66.0	T. P. 422.....	47 24 11.41 69 02 05.66	90 53 320 18	T. P. 421..... T. P. 423.....	124.2 124.6
T. P. 399.....	47 24 01.28 69 02 26.44	119 43 269 37	T. P. 398..... T. P. 400.....	66.0 89.5	T. P. 423.....	47 24 08.31 69 02 01.86	77 43 140 18 268 54	Ref. Mon. C-141... T. P. 422..... T. P. 424.....	69.5 124.6 62.1
T. P. 400.....	47 24 01.30 69 02 22.18	89 37 252 28	T. P. 399..... T. P. 401.....	89.5 261.6	Ref. Mon. C-141...	47 24 07.83 69 02 05.10	109 02 228 34 257 43	Ref. Mon. C-140... Ref. Mon. S-141... T. P. 423.....	394.9 187.5 69.5
T. P. 401.....	47 24 03.85 69 02 10.28	14 56 72 28 216 42	Ref. Mon. C-139... T. P. 400..... T. P. 402.....	136.6 261.6 45.5	T. P. 424.....	47 24 08.35 69 01 58.89	88 54 233 31	T. P. 423..... T. P. 425.....	62.1 88.3
Ref. Mon. C-139...	47 23 59.58 69 02 11.96	149 08 194 56 355 09	Ref. Mon. C-140... T. P. 401..... Ref. Mon. C-138...	447.1 136.6 313.9	T. P. 425.....	47 24 10.05 69 01 55.51	53 31 165 48	T. P. 424..... T. P. 426.....	88.3 50.5
T. P. 402.....	47 24 05.04 69 02 08.98	36 42 175 17	T. P. 401..... T. P. 403.....	45.5 55.9	T. P. 426.....	47 24 11.63 69 01 56.10	121 54 345 48	T. P. 427..... T. P. 425.....	81.7 50.5
T. P. 403.....	47 24 06.84 69 02 09.20	124 34 355 17	T. P. 404..... T. P. 402.....	39.8 55.9	T. P. 427.....	47 24 13.03 69 01 59.41	146 38 301 54 329 40	T. P. 428..... T. P. 426..... Ref. Mon. S-141...	122.4 81.7 42.3
T. P. 404.....	47 24 07.57 69 02 10.77	63 24 304 34	T. P. 405..... T. P. 403.....	122.4 39.8	Ref. Mon. S-141...	47 24 11.85 69 01 58.39	48 34 149 40	Ref. Mon. C-141... T. P. 427.....	187.5 42.3
T. P. 405.....	47 24 05.80 69 02 15.99	99 15 243 24	T. P. 406..... T. P. 404.....	94.6 122.4	T. P. 428.....	47 24 16.34 69 02 02.62	196 07 326 38	T. P. 429..... T. P. 427.....	181.5 122.4
T. P. 406.....	47 24 06.29 69 02 20.44	120 08 279 15	T. P. 407..... T. P. 405.....	131.7 94.6	T. P. 429.....	47 24 21.99 69 02 00.22	16 07 164 12 214 44 344 12	T. P. 428..... Ref. Mon. S-142... T. P. 430..... Ref. Mon. C-142...	181.5 52.2 95.1 166.3
T. P. 407.....	47 24 08.43 69 02 25.87	155 26 300 08	T. P. 408..... T. P. 406.....	101.7 131.7	Ref. Mon. S-142...	47 24 23.62 69 02 00.90	110 51 344 12 344 12	Ref. Mon. S-143... T. P. 429..... Ref. Mon. C-142...	203.7 52.2 218.5
T. P. 408.....	47 24 11.42 69 02 27.89	145 19 335 26	T. P. 409..... T. P. 407.....	120.7 101.7	Ref. Mon. C-142...	47 24 16.81 69 01 58.06	164 12 164 12	T. P. 429..... Ref. Mon. S-142...	166.3 218.5
T. P. 409.....	47 24 14.64 69 02 31.17	115 11 115 11 295 11 325 19	T. P. 410..... Ref. Mon. S-140... Ref. Mon. C-140... T. P. 408.....	71.8 109.2 191.7 120.7	T. P. 430.....	47 24 24.52 69 01 57.63	34 44 249 07	T. P. 429..... T. P. 431.....	95.1 82.7
Ref. Mon. S-140...	47 24 16.15 69 02 35.88	0 38 295 11 295 11 295 11	Ref. Mon. S-139... T. P. 410..... T. P. 409..... Ref. Mon. C-140...	203.7 37.4 109.2 300.9	T. P. 431.....	47 24 25.48 69 01 53.95	69 07 211 49	T. P. 430..... T. P. 432.....	82.7 57.7
Ref. Mon. C-140...	47 24 12.00 69 02 22.90	115 11 115 11 115 11 150 14 289 02 329 08	T. P. 409..... T. P. 410..... Ref. Mon. S-140... T. P. 419..... Ref. Mon. C-141... Ref. Mon. C-139...	191.7 263.5 300.9 62.1 394.9 447.1	T. P. 432.....	47 24 27.06 69 01 52.50	31 49 181 28	T. P. 431..... T. P. 433.....	57.7 136.7
T. P. 410.....	47 24 15.63 69 02 34.27	115 11 158 29 295 11 295 11	Ref. Mon. S-140... T. P. 411..... T. P. 409..... Ref. Mon. C-140...	37.4 60.0 71.8 263.5	T. P. 433.....	47 24 31.49 69 01 52.33	1 28 150 20	T. P. 432..... T. P. 434.....	136.7 48.7
T. P. 411.....	47 24 17.44 69 02 35.32	196 38 338 29	T. P. 412..... T. P. 410.....	54.5 60.0	T. P. 434.....	47 24 32.86 69 01 53.48	95 48 330 20	T. P. 435..... T. P. 433.....	31.7 48.7
T. P. 412.....	47 24 19.13 69 02 34.57	16 38 217 04	T. P. 411..... T. P. 413.....	54.5 73.8	T. P. 435.....	47 24 32.96 69 01 54.99	58 12 275 48	T. P. 436..... T. P. 434.....	59.8 31.7
T. P. 413.....	47 24 21.03 69 02 32.45	37 04 257 18	T. P. 412..... T. P. 414.....	73.8 37.3	Ref. Mon. C-143...	47 24 33.05 69 01 57.11	10 26 50 58	T. P. 437..... Ref. Mon. S-143...	34.8 347.3
					T. P. 437.....	47 24 29.14 69 02 01.36	65 51 223 45	T. P. 438..... T. P. 436.....	139.3 119.7



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
T. P. 438.....	47 24 27.30 69 02 07.42	71 21 245 51	T. P. 439..... T. P. 437.....	77.6 139.3	T. P. 461.....	47 25 15.89 69 02 24.46	180 33 271 15 351 52	T. P. 462..... Ref. Mon. C-147..... T. P. 460.....	144.8 31.8 149.2
T. P. 439.....	47 24 26.49 69 02 10.93	124 54 251 21 309 23	T. P. 440..... T. P. 438..... Ref. Mon. S-143.....	80.6 77.6 26.0	Ref. Mon. C-147.....	47 25 15.87 69 02 22.94	91 15 170 43	T. P. 461..... Ref. Mon. C-148.....	31.8 189.6
Ref. Mon. S-143.....	47 24 25.96 69 02 09.97	129 23 230 58 290 51	T. P. 439..... Ref. Mon. C-143..... Ref. Mon. S-142.....	26.0 347.3 203.7	T. P. 462.....	47 25 20.58 69 02 24.39	0 33 135 42	T. P. 461..... T. P. 463.....	144.8 64.1
T. P. 440.....	47 24 27.99 69 02 14.08	160 09 304 54	T. P. 441..... T. P. 439.....	102.5 80.6	T. P. 463.....	47 25 22.07 69 02 26.53	98 50 275 26 315 42	T. P. 464..... Ref. Mon. C-148..... T. P. 462.....	81.5 44.8 64.1
T. P. 441.....	47 24 31.11 69 02 15.74	190 28 340 09	T. P. 442..... T. P. 440.....	177.3 102.5	Ref. Mon. C-148.....	47 25 21.93 69 02 24.40	95 26 350 43	T. P. 463..... Ref. Mon. C-147.....	44.8 189.6
T. P. 442.....	47 24 36.75 69 02 14.20	10 28 244 29	T. P. 441..... T. P. 443.....	177.3 105.8	T. P. 464.....	47 25 22.47 69 02 30.37	123 59 278 50	T. P. 465..... T. P. 463.....	58.1 81.5
T. P. 443.....	47 24 38.23 69 02 09.65	64 29 191 35 246 55	T. P. 442..... T. P. 444..... Ref. Mon. C-144.....	105.8 80.6 41.9	T. P. 465.....	47 25 23.52 69 02 32.67	144 54 303 59	T. P. 465..... T. P. 464.....	65.4 58.1
Ref. Mon. C-144.....	47 24 38.76 69 02 07.81	66 55 182 57	T. P. 443..... Ref. Mon. C-145.....	41.9 293.4	T. P. 466.....	47 25 25.26 69 02 34.46	175 37 198 05 324 54	T. P. 467..... Ref. Mon. C-149..... T. P. 465.....	172.8 68.3 65.4
T. P. 444.....	47 24 40.79 69 02 08.88	11 35 160 28	T. P. 443..... T. P. 445.....	80.6 67.3	Ref. Mon. C-149.....	47 25 27.36 69 02 33.45	18 05 173 21	T. P. 466..... Ref. Mon. C-150.....	68.3 360.7
T. P. 445.....	47 24 42.84 69 02 09.95	163 23 340 28	T. P. 446..... T. P. 444.....	95.1 67.3	T. P. 467.....	47 25 30.84 69 02 35.09	164 43 355 37	T. P. 468..... T. P. 466.....	122.2 172.8
T. P. 446.....	47 24 45.79 69 02 11.25	186 34 343 23	T. P. 447..... T. P. 445.....	74.4 95.1	T. P. 468.....	47 25 34.65 69 02 36.63	157 30 344 43	T. P. 469..... T. P. 467.....	70.6 122.2
T. P. 447.....	47 24 48.18 69 02 10.84	6 34 223 06 268 28	T. P. 446..... T. P. 448..... Ref. Mon. C-145.....	74.4 132.3 78.7	T. P. 469.....	47 25 36.76 69 02 37.92	141 54 217 28 337 30	T. P. 470..... Ref. Mon. C-150..... T. P. 468.....	105.3 85.4 70.6
Ref. Mon. C-145.....	47 24 48.25 69 02 07.09	88 28 135 36 175 03	T. P. 447..... Ref. Mon. S-144..... Ref. Mon. C-146.....	78.7 164.8 242.0	Ref. Mon. C-150.....	47 25 38.96 69 02 35.44	37 28 353 21	T. P. 469..... Ref. Mon. C-149.....	85.4 360.7
T. P. 448.....	47 24 51.31 69 02 06.53	43 06 178 00	T. P. 447..... T. P. 449.....	132.3 45.7	T. P. 470.....	47 25 39.45 69 02 41.02	96 33 321 54	T. P. 471..... T. P. 469.....	153.5 105.3
T. P. 449.....	47 24 52.79 69 02 06.61	135 07 358 00	T. P. 450..... T. P. 448.....	36.3 45.7	T. P. 471.....	47 25 40.02 69 02 48.30	93 31 186 11 276 33	T. P. 472..... Ref. Mon. C-151..... T. P. 470.....	101.0 34.3 153.5
T. P. 450.....	47 24 53.62 69 02 07.83	113 58 315 07	T. P. 451..... T. P. 449.....	51.4 36.3	Ref. Mon. C-151.....	47 25 41.12 69 02 48.12	6 11 284 04	T. P. 471..... Ref. Mon. C-150.....	34.3 273.9
T. P. 451.....	47 24 54.30 69 02 10.07	37 26 71 49 217 26 293 58	Ref. Mon. S-144..... T. P. 452..... Ref. Mon. C-146..... T. P. 450.....	86.8 116.3 68.5 51.4	T. P. 472.....	47 25 40.22 69 02 53.11	35 04 273 31	T. P. 473..... T. P. 471.....	69.6 101.0
Ref. Mon. S-144.....	47 24 52.06 69 02 12.59	217 26 217 26 315 36	T. P. 451..... Ref. Mon. C-146..... Ref. Mon. C-145.....	86.8 155.3 164.8	T. P. 473.....	47 25 38.37 69 02 55.01	0 00 215 04	T. P. 474..... T. P. 472.....	62.7 69.6
Ref. Mon. C-146.....	47 24 56.06 69 02 08.08	37 26 37 26 355 03	T. P. 451..... Ref. Mon. S-144..... Ref. Mon. C-145.....	68.5 155.3 242.0	T. P. 474.....	47 25 36.34 69 02 55.01	180 00 307 54	T. P. 473..... T. P. 475.....	62.7 66.4
T. P. 452.....	47 24 53.12 69 02 15.34	86 44 251 49	T. P. 453..... T. P. 451.....	94.6 116.3	T. P. 475.....	47 25 35.02 69 02 52.51	127 54 294 12	T. P. 474..... T. P. 476.....	66.4 58.5
T. P. 453.....	47 24 52.95 69 02 19.84	112 15 266 44	T. P. 454..... T. P. 452.....	177.7 94.6	T. P. 476.....	47 25 34.24 69 02 49.96	114 12 326 56	T. P. 475..... T. P. 477.....	58.5 48.6
T. P. 454.....	47 24 55.13 69 02 27.69	94 35 292 15	T. P. 455..... T. P. 453.....	90.0 177.7	T. P. 477.....	47 25 32.92 69 02 48.70	146 56 349 05	T. P. 476..... T. P. 478.....	48.6 77.6
T. P. 455.....	47 24 55.36 69 02 31.97	132 59 274 35	T. P. 456..... T. P. 454.....	70.5 90.0	T. P. 478.....	47 25 30.46 69 02 48.00	25 28 169 05	T. P. 479..... T. P. 477.....	93.3 77.6
T. P. 456.....	47 24 56.92 69 02 34.43	180 26 312 59	T. P. 457..... T. P. 455.....	66.9 70.5	T. P. 479.....	47 25 27.73 69 02 49.91	48 31 205 28	T. P. 480..... T. P. 478.....	204.4 93.3
T. P. 457.....	47 24 59.08 69 02 34.41	0 26 204 24	T. P. 456..... T. P. 458.....	66.9 74.6	T. P. 480.....	47 25 23.35 69 02 57.21	40 27 228 31	T. P. 481..... T. P. 479.....	49.9 204.4
T. P. 458.....	47 25 01.28 69 02 32.94	24 24 202 03 220 17	T. P. 457..... Ref. Mon. S-145..... T. P. 459.....	74.6 132.9 265.3	T. P. 481.....	47 25 22.12 69 02 58.76	66 27 220 27	T. P. 482..... T. P. 480.....	168.7 49.9
Ref. Mon. S-145.....	47 25 05.27 69 02 30.56	22 03 206 01	T. P. 458..... Ref. Mon. C-147.....	132.9 364.1	Ref. Mon. S-146.....	47 25 20.16 69 03 02.63	84 34 153 56 153 56	T. P. 482..... T. P. 487..... Ref. Mon. S-147.....	73.9 184.4 227.3
T. P. 459.....	47 25 07.84 69 02 24.76	40 17 195 13	T. P. 458..... T. P. 460.....	265.3 104.8	T. P. 483.....	47 25 20.06 69 03 10.08	119 47 272 42	T. P. 484..... T. P. 482.....	49.3 82.6
T. P. 460.....	47 25 11.11 69 02 23.45	15 13 171 52	T. P. 459..... T. P. 461.....	104.8 149.2	T. P. 484.....	47 25 20.85 69 03 12.12	170 21 299 47	T. P. 485..... T. P. 483.....	51.3 49.3

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 485-----	47 25 22.49 69 03 12.53	217 22 350 21	T. P. 486----- T. P. 484-----	63.9 51.3	T. P. 510-----	47 25 47.56 69 03 21.32	93 54 322 12	T. P. 511----- T. P. 509-----	61.7 96.9
T. P. 486-----	47 25 24.14 69 03 10.68	37 22 244 04	T. P. 485----- T. P. 487-----	63.9 97.6	T. P. 511-----	47 25 47.69 69 03 24.26	107 25 196 44 273 54	T. P. 512----- Ref. Mon. C-154-- T. P. 510-----	58.8 37.0 61.7
T. P. 487-----	47 25 25.52 69 03 06.49	64 04 153 56 271 14 333 56	T. P. 486----- Ref. Mon. S-147-- T. P. 488----- Ref. Mon. S-146--	97.6 42.9 69.3 184.4	Ref. Mon. C-154--	47 25 48.84 69 03 23.75	16 44 170 25 170 25 304 40	T. P. 511----- T. P. 514----- Ref. Mon. S-150-- Ref. Mon. C-153--	37.0 125.9 162.9 142.3
Ref. Mon. S-147--	47 25 26.77 69 03 07.39	333 56 333 56	T. P. 487----- Ref. Mon. S-146--	42.9 227.3	T. P. 512-----	47 25 48.26 69 03 26.94	180 53 287 25	T. P. 513----- T. P. 511-----	98.1 58.8
T. P. 488-----	47 25 25.47 69 03 03.18	91 14 278 29	T. P. 487----- T. P. 489-----	69.3 47.4	T. P. 513-----	47 25 51.44 69 03 26.86	0 53 225 16	T. P. 512----- T. P. 514-----	98.1 62.4
T. P. 489-----	47 25 25.24 69 03 00.94	98 29 251 34	T. P. 488----- T. P. 490-----	47.4 40.2	T. P. 514-----	47 25 52.86 69 03 24.75	45 16 170 25 244 09 350 25	T. P. 513----- Ref. Mon. S-150-- T. P. 515----- Ref. Mon. C-154--	62.4 37.0 68.8 125.9
T. P. 490-----	47 25 25.65 69 02 59.13	71 34 217 14	T. P. 489----- T. P. 491-----	40.2 69.6	Ref. Mon. S-150--	47 25 54.04 69 03 25.04	132 19 132 19 350 25 350 25	T. P. 517----- Ref. Mon. C-155-- T. P. 514----- Ref. Mon. C-154--	63.8 117.0 37.0 162.9
T. P. 491-----	47 25 27.45 69 02 57.12	37 14 171 49	T. P. 490----- T. P. 492-----	69.6 103.4	T. P. 515-----	47 25 53.83 69 03 21.80	64 09 166 19	T. P. 514----- T. P. 516-----	68.8 74.8
T. P. 492-----	47 25 30.76 69 02 57.82	150 16 351 49	T. P. 493----- T. P. 491-----	87.3 103.4	T. P. 516-----	47 25 56.19 69 03 22.64	76 29 346 19	T. P. 517----- T. P. 515-----	100.2 74.8
T. P. 493-----	47 25 33.22 69 02 59.89	136 04 330 16	T. P. 494----- T. P. 492-----	111.0 87.3	T. P. 517-----	47 25 55.43 69 03 27.29	100 07 132 18 256 29 312 18	T. P. 518----- Ref. Mon. C-155-- T. P. 516----- Ref. Mon. S-150--	58.1 53.2 100.2 63.8
T. P. 494-----	47 25 35.80 69 03 03.56	100 30 316 04	T. P. 495----- T. P. 493-----	57.1 111.0	Ref. Mon. C-155--	47 25 56.59 69 03 29.17	312 18 312 18	T. P. 517----- Ref. Mon. S-150--	53.2 117.0
T. P. 495-----	47 25 36.14 69 03 06.24	7 19 83 19 280 30	Ref. Mon. S-148-- T. P. 496----- T. P. 494-----	37.7 49.8 57.1	T. P. 518-----	47 25 55.76 69 03 30.02	149 01 280 07	T. P. 519----- T. P. 517-----	55.2 58.1
Ref. Mon. S-148--	47 25 34.93 69 03 06.47	140 32 187 19	Ref. Mon. S-149-- T. P. 495-----	302.4 37.7	T. P. 519-----	47 25 57.29 69 03 31.38	122 25 329 01	T. P. 520----- T. P. 518-----	37.7 55.2
T. P. 496-----	47 25 35.95 69 03 08.60	164 40 263 19	T. P. 497----- T. P. 495-----	143.7 49.8	T. P. 520-----	47 25 57.94 69 03 32.89	56 55 302 25	T. P. 521----- T. P. 519-----	90.1 37.7
T. P. 497-----	47 25 40.44 69 03 10.42	125 06 344 40	T. P. 498----- T. P. 496-----	69.1 143.7	T. P. 521-----	47 25 56.35 69 03 36.50	90 00 236 55	T. P. 522----- T. P. 520-----	47.3 90.1
T. P. 498-----	47 25 41.72 69 03 13.11	155 26 305 06	T. P. 499----- T. P. 497-----	45.0 69.1	T. P. 522-----	47 25 56.35 69 03 38.75	164 46 270 00	T. P. 523----- T. P. 521-----	78.0 47.3
T. P. 499-----	47 25 43.05 69 03 14.00	63 15 181 41 335 26	Ref. Mon. S-149-- T. P. 500----- T. P. 498-----	38.4 34.0 45.0	T. P. 523-----	47 25 58.79 69 03 39.73	111 06 111 06 291 06 344 46	T. P. 524----- Ref. Mon. C-157-- Ref. Mon. C-156-- T. P. 522-----	32.6 84.3 74.0 78.0
Ref. Mon. S-149--	47 25 42.49 69 03 15.64	243 15 320 32	T. P. 499----- Ref. Mon. S-148--	38.4 302.4	Ref. Mon. C-156--	47 25 57.93 69 03 36.43	111 06 111 06 111 06	T. P. 523----- T. P. 524----- Ref. Mon. C-157--	74.0 106.6 158.3
T. P. 500-----	47 25 44.15 69 03 13.96	1 41 218 04	T. P. 499----- T. P. 501-----	34.0 61.5	Ref. Mon. C-157--	47 25 59.77 69 03 43.48	291 05 291 05 291 05	T. P. 524----- T. P. 523----- Ref. Mon. C-156--	51.7 84.3 158.3
T. P. 501-----	47 25 45.72 69 03 12.15	38 04 233 51	T. P. 500----- T. P. 502-----	61.5 64.4	T. P. 524-----	47 25 59.17 69 03 41.18	44 54 111 05 291 05 291 05	T. P. 525----- Ref. Mon. C-157-- T. P. 523----- Ref. Mon. C-156--	78.3 51.7 32.6 106.6
T. P. 502-----	47 25 46.95 69 03 09.67	53 51 171 45	T. P. 501----- T. P. 503-----	64.4 44.6	T. P. 525-----	47 25 57.37 69 03 43.82	107 25 224 54	T. P. 526----- T. P. 524-----	49.8 78.3
T. P. 503-----	47 25 48.38 69 03 09.97	119 06 351 45	T. P. 504----- T. P. 502-----	91.1 44.6	T. P. 526-----	47 25 57.85 69 03 46.09	177 21 287 25	T. P. 527----- T. P. 525-----	123.4 49.8
T. P. 504-----	47 25 49.81 69 03 13.77	87 08 299 06	T. P. 505----- T. P. 503-----	48.1 91.1	T. P. 527-----	47 26 01.85 69 03 46.36	128 54 357 21	T. P. 528----- T. P. 526-----	60.5 123.4
T. P. 505-----	47 25 49.73 69 03 16.06	57 26 146 05 267 08	T. P. 506----- Ref. Mon. C-152-- T. P. 504-----	38.4 34.1 48.1	T. P. 528-----	47 26 03.08 69 03 48.61	85 59 308 54	T. P. 529----- T. P. 527-----	52.7 60.5
Ref. Mon. C-152--	47 25 50.65 69 03 16.97	10 21 326 05	Ref. Mon. C-153-- T. P. 505-----	139.0 34.1	T. P. 529-----	47 26 02.96 69 03 51.12	21 25 265 59	T. P. 530----- T. P. 528-----	114.2 52.7
T. P. 506-----	47 25 49.06 69 03 17.61	237 26 336 03	T. P. 505----- T. P. 507-----	38.4 96.1	T. P. 530-----	47 25 59.51 69 03 53.11	201 25 348 31	T. P. 529----- T. P. 531-----	114.2 136.5
T. P. 507-----	47 25 46.22 69 03 15.75	17 50 156 03	T. P. 508----- T. P. 506-----	45.1 96.1	T. P. 531-----	47 25 55.18 69 03 51.81	168 31 328 44	T. P. 530----- T. P. 532-----	136.5 67.0
T. P. 508-----	47 25 44.83 69 03 16.40	99 53 197 50	T. P. 509----- T. P. 507-----	44.3 45.1					
T. P. 509-----	47 25 45.08 69 03 18.49	142 12 190 54 279 53	T. P. 510----- Ref. Mon. C-153-- T. P. 508-----	96.9 36.0 44.3					
Ref. Mon. C-153--	47 25 46.22 69 03 18.16	10 54 124 40	T. P. 509----- Ref. Mon. C-154--	36.0 142.3					



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 532.....	47 25 53.33 69 03 50.15	148 44 296 51	T. P. 531..... T. P. 533.....	67.0 45.2	Ref. Mon. S-154.....	47 25 28.41 69 05 15.59	173 48 173 48	T. P. 552..... Ref. Mon. C-161.....	100.8 145.4
T. P. 533.....	47 25 52.67 69 03 48.22	116 51 291 52	T. P. 532..... T. P. 534.....	45.2 64.4	T. P. 553.....	47 25 32.27 69 05 19.63	57 28 284 29	T. P. 554..... T. P. 552.....	70.5 76.3
T. P. 534.....	47 25 51.89 69 03 45.37	111 52 355 21	T. P. 533..... T. P. 535.....	64.4 44.4	T. P. 554.....	47 25 31.04 69 05 22.47	37 45 237 28	T. P. 555..... T. P. 553.....	149.0 70.5
T. P. 535.....	47 25 50.45 69 03 45.20	61 31 175 21	T. P. 536..... T. P. 534.....	48.2 44.4	T. P. 555.....	47 25 27.23 69 05 26.82	105 48 217 45	T. P. 556..... T. P. 554.....	62.5 149.0
T. P. 536.....	47 25 49.71 69 03 47.22	122 48 241 31	T. P. 537..... T. P. 535.....	73.3 48.2	T. P. 556.....	47 25 27.78 69 05 29.69	185 00 285 48	T. P. 557..... T. P. 555.....	197.6 62.5
T. P. 537.....	47 25 51.00 69 03 50.16	112 04 295 46 302 48	T. P. 538..... Ref. Mon. C-158..... T. P. 536.....	99.8 37.0 73.3	T. P. 557.....	47 25 34.15 69 05 28.87	5 00 153 45	T. P. 556..... T. P. 558.....	197.6 95.7
Ref. Mon. C-158.....	47 25 51.67 69 03 48.70	55 46 203 36	T. P. 537..... Ref. Mon. C-157.....	37.0 273.2	T. P. 558.....	47 25 36.93 69 05 30.89	114 03 333 45	T. P. 559..... T. P. 557.....	83.4 95.7
T. P. 538.....	47 25 52.21 69 03 54.57	75 24 292 04	T. P. 539..... T. P. 537.....	90.4 99.8	T. P. 559.....	47 25 38.03 69 05 34.52	84 42 294 03	T. P. 560..... T. P. 558.....	259.8 83.4
T. P. 539.....	47 25 51.47 69 03 58.75	55 06 255 24	T. P. 540..... T. P. 538.....	154.0 90.4	T. P. 560.....	47 25 37.25 69 05 46.86	69 34 264 42	T. P. 561..... T. P. 559.....	110.2 259.8
T. P. 540.....	47 25 48.62 69 04 04.77	47 00 235 06 298 10	T. P. 541..... T. P. 539..... Ref. Mon. S-151.....	97.6 154.0 88.9	T. P. 561.....	47 25 36.00 69 05 51.79	120 54 249 34	T. P. 562..... T. P. 560.....	68.5 110.2
Ref. Mon. S-151.....	47 25 47.26 69 04 01.03	47 46 118 10	Ref. Mon. C-159..... T. P. 540.....	277.6 88.9	T. P. 562.....	47 25 37.14 69 05 54.60	14 07 200 54 300 54	Ref. Mon. S-155..... T. P. 563..... T. P. 561.....	34.5 132.8 68.5
T. P. 541.....	47 25 46.46 69 04 08.18	1 55 227 00	T. P. 542..... T. P. 540.....	230.3 97.6	Ref. Mon. S-155.....	47 25 36.06 69 05 55.00	184 05 20 194 07	Ref. Mon. C-162..... T. P. 562.....	558.6 34.5
T. P. 542.....	47 25 39.01 69 04 08.55	72 56 144 51 181 55	T. P. 543..... Ref. Mon. C-159..... T. P. 541.....	219.7 83.2 230.3	T. P. 563.....	47 25 41.16 69 05 52.34	20 54 161 14	T. P. 562..... T. P. 564.....	132.8 84.0
Ref. Mon. C-159.....	47 25 41.21 69 04 10.83	34 37 227 46 324 51	Ref. Mon. S-152..... Ref. Mon. S-151..... T. P. 542.....	242.9 277.6 83.2	T. P. 564.....	47 25 43.74 69 05 53.63	195 49 341 14	T. P. 565..... T. P. 563.....	117.8 84.0
T. P. 543.....	47 25 36.92 69 04 18.57	111 51 252 56 340 23	T. P. 544..... T. P. 542..... Ref. Mon. S-152.....	189.9 219.7 71.5	T. P. 565.....	47 25 47.40 69 05 52.10	15 49 135 15	T. P. 564..... T. P. 566.....	117.8 112.5
Ref. Mon. S-152.....	47 25 34.74 69 04 17.42	78 37 160 23 214 37	Ref. Mon. S-153..... T. P. 543..... Ref. Mon. C-159.....	377.8 71.5 242.9	T. P. 566.....	47 25 49.99 69 05 55.88	155 08 315 15	T. P. 567..... T. P. 565.....	121.2 112.5
T. P. 544.....	47 25 39.21 69 04 26.98	79 10 291 51	T. P. 545..... T. P. 543.....	103.2 189.9	T. P. 567.....	47 25 53.55 69 05 58.31	80 13 261 13 335 08	T. P. 568..... Ref. Mon. C-162..... T. P. 566.....	89.5 110.5 121.2
T. P. 545.....	47 25 38.58 69 04 31.82	40 47 259 10	T. P. 546..... T. P. 544.....	113.6 103.2	Ref. Mon. C-162.....	47 25 54.10 69 05 53.10	4 05 20 81 13	Ref. Mon. S-155..... T. P. 567.....	558.6 110.5
T. P. 546.....	47 25 35.80 69 04 35.36	79 32 220 47	T. P. 547..... T. P. 545.....	40.2 113.6	T. P. 568.....	47 25 53.06 69 06 02.52	260 13 340 04	T. P. 567..... T. P. 569.....	89.5 110.3
T. P. 547.....	47 25 35.56 69 04 37.24	64 59 155 41 259 32 335 41	T. P. 548..... Ref. Mon. C-160..... T. P. 546..... Ref. Mon. S-153.....	174.0 132.9 40.2 109.6	T. P. 569.....	47 25 49.70 69 06 00.73	75 09 160 04	T. P. 570..... T. P. 568.....	78.4 110.3
Ref. Mon. C-160.....	47 25 39.48 69 04 39.85	335 41 335 41	T. P. 547..... Ref. Mon. S-153.....	132.9 242.5	T. P. 570.....	47 25 49.05 69 06 04.34	162 29 255 09	T. P. 571..... T. P. 569.....	93.0 78.4
Ref. Mon. S-153.....	47 25 32.33 69 04 35.09	155 41 155 41 258 36	T. P. 547..... Ref. Mon. C-160..... Ref. Mon. S-152.....	109.6 242.5 377.8	T. P. 571.....	47 25 51.92 69 06 05.68	77 37 342 29	T. P. 572..... T. P. 570.....	155.7 93.0
T. P. 548.....	47 25 33.18 69 04 44.76	32 24 244 59	T. P. 549..... T. P. 547.....	189.8 174.0	T. P. 572.....	47 25 50.84 69 06 12.94	101 21 257 37	T. P. 573..... T. P. 571.....	96.0 155.7
T. P. 549.....	47 25 27.99 69 04 49.62	60 07 212 24	T. P. 550..... T. P. 548.....	135.9 189.8	T. P. 573.....	47 25 51.46 69 06 17.43	18 41 281 21	T. P. 574..... T. P. 572.....	71.1 96.0
T. P. 550.....	47 25 25.79 69 04 55.24	103 41 240 07	T. P. 551..... T. P. 549.....	229.9 135.9	T. P. 574.....	47 25 49.27 69 06 18.51	198 41 342 34	T. P. 573..... T. P. 575.....	71.1 140.1
T. P. 551.....	47 25 27.56 69 05 05.89	120 33 283 41	T. P. 552..... T. P. 550.....	248.6 229.9	T. P. 575.....	47 25 44.94 69 06 16.51	33 24 162 34	T. P. 576..... T. P. 574.....	153.7 140.1
T. P. 552.....	47 25 31.65 69 05 16.11	104 29 173 48 300 33 353 48	T. P. 553..... Ref. Mon. C-161..... T. P. 551..... Ref. Mon. S-154.....	76.3 44.6 248.6 100.8	T. P. 576.....	47 25 40.79 69 06 20.55	67 17 213 24	T. P. 577..... T. P. 575.....	158.0 153.7
Ref. Mon. C-161.....	47 25 33.09 69 05 16.34	353 48 353 48	T. P. 552..... Ref. Mon. S-154.....	44.6 145.4	T. P. 577.....	47 25 38.81 69 06 27.50	123 00 247 17	T. P. 578..... T. P. 576.....	67.4 158.0
					T. P. 578.....	47 25 40.00 69 06 30.19	34 56 193 01 303 00	Ref. Mon. S-156..... T. P. 579..... T. P. 577.....	43.0 82.6 67.4
					Ref. Mon. S-156.....	47 25 38.86 69 06 31.37	204 38 214 56	Ref. Mon. C-163..... T. P. 578.....	289.8 43.0
					T. P. 579.....	47 25 42.61 69 06 29.31	13 01 180 22	T. P. 578..... T. P. 580.....	82.6 140.6

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 580-----	47 25 47.16 69 06 29.26	0 22 211 54 264 44	T. P. 579----- T. P. 581----- Ref. Mon. C-163	140.6 131.3 76.9	T. P. 605-----	47 26-26.82 69 07 27.31	119 14 223 46	T. P. 606----- T. P. 604-----	53.6 49.4
Ref. Mon. C-163--	47 25 47.39 69 06 25.61	24 38 84 44	Ref. Mon. S-156-- T. P. 580-----	289.8 76.9	T. P. 606-----	47 26 27.67 69 07 29.54	49 07 167 18 299 14	Ref. Mon. S-158-- T. P. 607----- T. P. 605-----	47.6 134.7 53.6
T. P. 581-----	47 25 50.77 69 06 25.95	31 54 171 42	T. P. 580----- T. P. 582-----	131.3 79.0	T. P. 607-----	47 26 31.92 69 07 30.96	134 33 347 18	T. P. 608----- T. P. 606-----	231.4 134.7
T. P. 582-----	47 25 53.30 69 06 26.50	140 32 351 42	T. P. 583----- T. P. 581-----	105.6 79.0	T. P. 608-----	47 26 37.18 69 07 38.83	112 24 314 33	T. P. 609----- T. P. 607-----	110.2 231.4
T. P. 583-----	47 25 55.94 69 06 29.70	164 11 320 32	T. P. 584----- T. P. 582-----	101.2 105.6	T. P. 609-----	47 26 38.54 69 07 43.69	95 21 292 24	T. P. 610----- T. P. 608-----	98.5 110.2
T. P. 584-----	47 25 59.10 69 06 31.02	197 30 344 11	T. P. 585----- T. P. 583-----	160.3 101.2	T. P. 610-----	47 26 38.84 69 07 48.37	113 48 275 21	T. P. 611----- T. P. 609-----	97.6 98.5
T. P. 585-----	47 26 04.05 69 06 28.72	17 30 162 48	T. P. 584----- T. P. 586-----	160.3 118.0	T. P. 611-----	47 26 40.11 69 07 52.64	100 15 189 47 293 48	T. P. 612----- Ref. Mon. C-166-- T. P. 610-----	50.6 40.0 97.6
T. P. 586-----	47 26 07.70 69 06 30.38	136 11 342 48	T. P. 587----- T. P. 585-----	137.1 118.0	Ref. Mon. C-166--	47 26 41.39 69 07 52.31	9 47 113 17 00	T. P. 611----- Ref. Mon. C-167--	40.0 684.4
T. P. 587-----	47 26 10.90 69 06 34.91	99 07 316 11	T. P. 588----- T. P. 586-----	72.0 137.1	T. P. 612-----	47 26 40.40 69 07 55.01	79 36 280 15	T. P. 613----- T. P. 611-----	164.4 50.6
T. P. 588-----	47 26 11.27 69 06 38.31	65 47 279 07	T. P. 589----- T. P. 587-----	158.7 72.0	T. P. 613-----	47 26 39.44 69 08 02.73	119 08 259 36	T. P. 614----- T. P. 612-----	99.0 164.4
T. P. 589-----	47 26 09.16 69 06 45.21	56 45 92 19 236 45 245 47	Ref. Mon. S-157-- T. P. 590----- Ref. Mon. C-164-- T. P. 588-----	41.6 51.8 243.8 158.7	T. P. 614-----	47 26 41.00 69 08 06.86	149 17 299 08	T. P. 615----- T. P. 613-----	69.1 99.0
Ref. Mon. S-157--	47 26 08.42 69 06 46.87	236 45 236 45	T. P. 589----- Ref. Mon. C-164--	41.6 285.4	T. P. 615-----	47 26 42.93 69 08 08.54	128 38 329 17	T. P. 616----- T. P. 614-----	72.1 69.1
Ref. Mon. C-164--	47 26 13.49 69 06 35.48	56 46 56 46	T. P. 589----- Ref. Mon. S-157--	243.8 285.4	T. P. 616-----	47 26 44.38 69 08 11.23	103 13 308 38	T. P. 617----- T. P. 615-----	151.7 72.1
T. P. 590-----	47 26 09.23 69 06 47.68	147 12 272 19	T. P. 591----- T. P. 589-----	46.5 51.8	T. P. 617-----	47 26 45.51 69 08 18.28	136 56 283 13	T. P. 618----- T. P. 616-----	73.2 151.7
T. P. 591-----	47 26 10.49 69 06 48.89	202 52 327 12	T. P. 592----- T. P. 590-----	164.6 46.5	T. P. 618-----	47 26 47.24 69 08 20.67	115 11 316 56	T. P. 619----- T. P. 617-----	72.4 73.2
T. P. 592-----	47 26 15.41 69 06 45.83	22 52 135 09	T. P. 591----- T. P. 593-----	164.6 128.2	T. P. 619-----	47 26 48.24 69 08 23.79	56 38 207 35 295 11	T. P. 620----- Ref. Mon. C-167-- T. P. 618-----	58.9 66.7 72.4
T. P. 593-----	47 26 18.35 69 06 50.15	98 07 315 09	T. P. 594----- T. P. 592-----	58.8 128.2	Ref. Mon. C-167--	47 26 50.15 69 08 22.32	27 35 293 16 40	T. P. 619----- Ref. Mon. C-166--	66.7 684.4
T. P. 594-----	47 26 18.62 69 06 52.93	78 59 278 07	T. P. 595----- T. P. 593-----	86.3 58.8	T. P. 620-----	47 26 47.19 69 08 26.14	8 33 236 38	T. P. 621----- T. P. 619-----	121.2 58.9
T. P. 595-----	47 26 18.08 69 06 56.97	116 01 258 59	T. P. 596----- T. P. 594-----	236.6 86.3	T. P. 621-----	47 26 43.31 69 08 27.00	188 33 324 26	T. P. 622----- T. P. 620-----	121.2 85.4
T. P. 596-----	47 26 21.45 69 07 07.11	141 00 296 01	T. P. 597----- T. P. 595-----	109.0 236.6	T. P. 622-----	47 26 41.06 69 08 24.63	25 43 144 26	T. P. 623----- T. P. 621-----	78.8 85.4
T. P. 597-----	47 26 24.19 69 07 10.38	162 58 321 00	T. P. 598----- T. P. 596-----	82.3 109.0	T. P. 623-----	47 26 38.76 69 08 26.26	89 47 205 43	T. P. 624----- T. P. 622-----	80.8 78.8
T. P. 598-----	47 26 26.74 69 07 11.54	128 50 342 58	T. P. 599----- T. P. 597-----	104.1 82.3	T. P. 624-----	47 26 38.75 69 08 30.12	44 02 137 02 269 47	Ref. Mon. S-159-- T. P. 625----- T. P. 623-----	17.6 83.6 80.8
T. P. 599-----	47 26 28.85 69 07 15.41	147 36 308 50	T. P. 600----- T. P. 598-----	111.2 104.1	Ref. Mon. S-159--	47 26 38.34 69 08 30.70	150 04 00 224 02	Ref. Mon. C-168-- T. P. 624-----	627.2 17.6
T. P. 600-----	47 26 31.89 69 07 18.25	59 22 133 52 239 22 327 36	Ref. Mon. S-158-- T. P. 601----- Ref. Mon. C-165-- T. P. 599-----	316.8 96.5 46.8 111.2	T. P. 625-----	47 26 40.73 69 08 32.84	165 57 317 02	T. P. 626----- T. P. 624-----	165.2 83.6
Ref. Mon. S-158--	47 26 26.66 69 07 31.26	229 07 239 22 239 22	T. P. 606----- T. P. 600----- Ref. Mon. C-165--	47.6 316.8 363.6	T. P. 626-----	47 26 45.92 69 08 34.75	142 03 345 57	T. P. 627----- T. P. 625-----	177.9 165.2
Ref. Mon. C-165--	47 26 32.66 69 07 16.33	59 22 59 22	T. P. 600----- Ref. Mon. S-158--	46.8 363.6	T. P. 627-----	47 26 50.46 69 08 39.97	130 55 322 03	T. P. 628----- T. P. 626-----	59.5 177.9
T. P. 601-----	47 26 34.06 69 07 21.57	104 35 313 52	T. P. 602----- T. P. 600-----	61.2 96.5	T. P. 628-----	47 26 51.73 69 08 42.12	139 50 310 55	T. P. 629----- T. P. 627-----	142.6 59.5
T. P. 602-----	47 26 34.56 69 07 24.40	59 43 284 35	T. P. 603----- T. P. 601-----	50.4 61.2	T. P. 629-----	47 26 55.26 69 08 46.52	124 50 221 00 319 50	T. P. 630----- Ref. Mon. C-168-- T. P. 628-----	87.4 28.0 142.6
T. P. 603-----	47 26 33.73 69 07 26.47	239 43 354 38	T. P. 602----- T. P. 604-----	50.4 178.6	Ref. Mon. C-168--	47 26 55.94 69 08 45.64	41 00 330 03 50	T. P. 629----- Ref. Mon. S-159--	28.0 627.2
T. P. 604-----	47 26 27.98 69 07 25.68	43 46 174 38	T. P. 605----- T. P. 603-----	49.4 178.6	T. P. 630-----	47 26 56.87 69 08 49.94	101 23 304 50	T. P. 631----- T. P. 629-----	49.2 87.4



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 631	47 26 57.19 69 08 52.24	58 17 281 23	T. P. 632 T. P. 630	58.2 49.2	Ref. Mon. C-170	47 27 10.58 69 10 07.31	33 30 33 30	T. P. 655 Ref. Mon. S-163	36.4 72.8
T. P. 632	47 26 56.20 69 08 54.60	74 43 238 17	T. P. 633 T. P. 631	64.9 58.2	T. P. 656	47 27 12.20 69 10 11.23	96 06 322 17	T. P. 657 T. P. 655	255.8 101.5
T. P. 633	47 26 55.64 69 08 57.59	91 37 359 14	T. P. 634 T. P. 632 Ref. Mon. S-160	127.1 64.9 31.9	T. P. 657	47 27 13.08 69 10 23.37	196 37 276 06	T. P. 658 T. P. 656	98.3 255.8
Ref. Mon. S-160	47 26 54.61 69 08 57.57	179 14 260 38	T. P. 633 Ref. Mon. C-168	31.9 253.4	T. P. 658	47 27 16.13 69 10 22.03	16 37 96 50	T. P. 657 T. P. 659	98.3 74.0
T. P. 634	47 26 55.76 69 09 03.65	113 04 271 37	T. P. 635 T. P. 633	71.2 127.1	T. P. 659	47 27 16.42 69 10 25.54	192 27 276 50	T. P. 660 T. P. 658	134.5 74.0
T. P. 635	47 26 56.66 69 09 06.78	139 10 293 04	T. P. 636 T. P. 634	182.8 71.2	T. P. 660	47 27 20.67 69 10 24.16	12 27 110 31	T. P. 659 T. P. 661	134.5 37.4
T. P. 636	47 27 01.14 69 09 12.48	106 58 319 10	T. P. 637 T. P. 635	158.7 182.8	T. P. 661	47 27 21.09 69 10 25.83	74 06 290 31	T. P. 662 T. P. 660	146.8 37.4
T. P. 637	47 27 02.64 69 09 19.73	136 16 286 58	T. P. 638 T. P. 636	115.3 158.7	T. P. 662	47 27 19.79 69 10 32.57	114 45 254 06	T. P. 663 T. P. 661	35.3 146.8
T. P. 638	47 27 05.34 69 09 23.53	121 20 208 10 316 16	T. P. 639 Ref. Mon. C-169 T. P. 637	53.3 28.2 115.3	T. P. 663	47 27 20.27 69 10 34.10	197 39 294 45	T. P. 664 T. P. 662	98.6 35.3
Ref. Mon. C-169	47 27 06.14 69 09 22.90	28 10 31 37	T. P. 638 Ref. Mon. S-161	28.2 442.4	T. P. 664	47 27 23.31 69 10 32.67	17 39 122 53	T. P. 663 T. P. 665	98.6 76.1
T. P. 639	47 27 06.23 69 09 25.71	89 37 301 20	T. P. 640 T. P. 638	44.0 53.3	T. P. 665	47 27 24.65 69 10 35.72	65 38 302 53	T. P. 666 T. P. 664	87.5 76.1
T. P. 640	47 27 06.22 69 09 27.81	40 35 269 37	T. P. 641 T. P. 639	40.4 44.0	T. P. 666	47 27 23.48 69 10 39.53	81 40 245 38	T. P. 667 T. P. 665	75.2 87.5
T. P. 641	47 27 05.23 69 09 29.06	6 28 220 35	T. P. 642 T. P. 640	63.9 40.4	T. P. 667	47 27 23.13 69 10 43.08	150 57 261 40	T. P. 668 T. P. 666	46.6 75.2
T. P. 642	47 27 03.17 69 09 29.40	14 16 186 28	T. P. 643 T. P. 641	189.5 63.9	T. P. 668	47 27 24.45 69 10 44.16	191 23 330 57	T. P. 669 T. P. 667	41.5 46.6
T. P. 643	47 26 57.23 69 09 31.63	39 42 194 16	T. P. 644 T. P. 642	103.5 189.5	T. P. 669	47 27 25.76 69 10 43.77	11 23 123 03	T. P. 668 T. P. 670	41.5 64.2
T. P. 644	47 26 54.65 69 09 34.79	53 30 219 42 321 55	T. P. 645 T. P. 643 Ref. Mon. S-161	168.1 103.5 27.8	T. P. 670	47 27 26.90 69 10 46.34	35 07 184 16 303 03	T. P. 671 Ref. Mon. C-171 T. P. 669	138.0 123.3 64.2
Ref. Mon. S-161	47 26 53.94 69 09 33.97	141 55 211 37	T. P. 644 Ref. Mon. C-169	27.8 442.4	Ref. Mon. C-171	47 27 30.88 69 10 45.90	4 16 38 40	T. P. 670 Ref. Mon. S-164	123.3 396.7
T. P. 645	47 26 51.41 69 09 41.24	72 32 233 30	T. P. 646 T. P. 644	54.3 168.1	T. P. 671	47 27 23.24 69 10 50.13	63 12 215 07	T. P. 672 T. P. 670	65.2 138.0
T. P. 646	47 26 50.88 69 09 43.71	96 17 252 32	T. P. 647 T. P. 645	57.5 54.3	T. P. 672	47 27 22.29 69 10 52.91	83 25 243 12	T. P. 673 T. P. 671	180.4 65.2
T. P. 647	47 26 51.09 69 09 46.44	125 53 276 17	T. P. 648 T. P. 646	222.9 57.5	T. P. 673	47 27 21.62 69 11 01.46	136 38 263 25	T. P. 674 T. P. 672	76.8 180.4
T. P. 648	47 26 55.42 69 09 54.95	154 03 306 53	T. P. 649 T. P. 647	74.7 222.9	T. P. 674	47 27 23.43 69 11 03.97	89 48 316 38	T. P. 675 T. P. 673	56.5 76.8
T. P. 649	47 26 57.59 69 09 56.51	204 16 334 03	T. P. 650 T. P. 648	53.5 74.7	T. P. 675	47 27 23.42 69 11 06.67	25 31 112 57 269 48 292 57	T. P. 676 Ref. Mon. C-172 T. P. 674 Ref. Mon. S-164	126.1 49.6 56.5 203.7
T. P. 650	47 26 59.17 69 09 55.46	24 16 120 45 263 18	T. P. 649 Ref. Mon. S-162 T. P. 651	53.5 43.8 95.0	Ref. Mon. C-172	47 27 24.04 69 11 08.84	292 57 292 57	T. P. 675 Ref. Mon. S-164	49.6 253.3
Ref. Mon. S-162	47 26 59.90 69 09 57.26	137 03 300 45	Ref. Mon. S-163 T. P. 650	368.0 43.8	Ref. Mon. S-164	47 27 20.85 69 10 57.73	112 57 112 57	T. P. 675 Ref. Mon. C-172	203.7 253.3
T. P. 651	47 26 59.53 69 09 50.96	83 18 207 38	T. P. 650 T. P. 652	95.0 62.5	T. P. 676	47 27 19.74 69 11 09.26	92 56 205 31	T. P. 677 T. P. 675	123.4 126.1
T. P. 652	47 27 01.33 69 09 49.57	27 38 135 25	T. P. 651 T. P. 653	62.5 193.5	T. P. 677	47 27 19.94 69 11 15.14	68 16 272 56	T. P. 678 T. P. 676	111.5 123.4
T. P. 653	47 27 05.79 69 09 56.06	107 32 315 25	T. P. 654 T. P. 652	193.9 193.5	T. P. 678	47 27 18.60 69 11 20.09	43 28 248 16	T. P. 679 T. P. 677	87.5 111.5
T. P. 654	47 27 07.68 69 10 04.88	129 52 287 32	T. P. 655 T. P. 653	92.5 193.9	T. P. 679	47 27 16.55 69 11 22.96	0 00 223 28	T. P. 680 T. P. 678	66.5 87.5
T. P. 655	47 27 09.60 69 10 08.27	33 30 142 17 213 30 309 52	Ref. Mon. S-163 T. P. 656 Ref. Mon. C-170 T. P. 654	36.4 101.5 36.4 92.5	T. P. 680	47 27 14.39 69 11 22.96	59 06 180 00	T. P. 681 T. P. 679	74.0 66.5
Ref. Mon. S-163	47 27 08.62 69 10 09.23	213 30 213 30	T. P. 655 Ref. Mon. C-170	36.4 72.8	T. P. 681	47 27 13.16 69 11 25.99	88 17 325 05	T. P. 682 T. P. 680 Ref. Mon. S-165	40.2 74.0 52.4

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—ST. FRANCIS RIVER—Con.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Ref. Mon. S-165	47 27 11.77 69 11 24.56	123 45 10 145 05	Ref. Mon. C-173	517.2	T. P. 699	47 27 10.94 69 12 22.53	231 05 357 31	T. P. 700	82.8
T. P. 682	47 27 13.12 69 11 27.91	153 28 268 17	T. P. 681	52.4	T. P. 700	47 27 12.62 69 12 19.46	51 05 126 35	T. P. 698	85.7
T. P. 683	47 27 15.77 69 11 29.86	141 26 333 28	T. P. 683	91.3	T. P. 701	47 27 15.10 69 12 24.38	100 40 306 35	T. P. 699	82.8
T. P. 684	47 27 17.91 69 11 32.38	119 54 321 26	T. P. 684	84.7	T. P. 702	47 27 16.38 69 12 34.42	139 39 280 40	T. P. 701	128.5
T. P. 685	47 27 19.48 69 11 36.39	102 19 299 54	T. P. 682	91.3	T. P. 703	47 27 18.06 69 12 36.52	122 54 319 39	T. P. 702	213.9
T. P. 686	47 27 20.30 69 11 41.92	87 02 282 19	T. P. 685	96.9	T. P. 704	47 27 19.33 69 12 39.41	75 30 302 54	T. P. 700	128.5
T. P. 687	47 27 20.11 69 11 47.17	70 45 235 29	T. P. 686	118.6	T. P. 705	47 27 18.61 69 12 43.51	113 06 255 30	T. P. 703	68.0
Ref. Mon. C-173	47 27 21.08 69 11 45.09	55 29 303 44 50	T. P. 687	109.9	T. P. 706	47 27 19.31 69 12 45.92	107 04 198 20	T. P. 704	72.2
T. P. 688	47 27 18.40 69 11 54.40	60 39 250 45	T. P. 688	109.9	Ref. Mon. C-175	47 27 25.32 69 12 42.98	18 20 75 01	T. P. 705	68.0
T. P. 689	47 27 14.80 69 12 03.82	29 37 209 50	T. P. 689	160.5	T. P. 707	47 27 19.95 69 12 48.98	147 43 287 04	T. P. 706	88.6
Ref. Mon. C-174	47 27 16.79 69 12 02.14	29 50 48 44	Ref. Mon. C-173	52.8	T. P. 708	47 27 22.91 69 12 51.74	121 42 327 43	T. P. 707	88.6
T. P. 690	47 27 10.93 69 12 07.07	43 56 209 37	T. P. 686	109.9	T. P. 709	47 27 23.81 69 12 53.89	91 40 301 42	T. P. 708	67.2
T. P. 691	47 27 08.35 69 12 10.73	67 33 223 56	T. P. 690	137.6	T. P. 710	47 27 23.98 69 13 02.55	14 19 93 13	Ref. Mon. C-175	195.6
T. P. 692	47 27 07.93 69 12 12.24	85 21 247 33	T. P. 691	70.7	Ref. Mon. S-167	47 27 21.60 69 13 03.45	194 19 255 01	T. P. 709	54.8
T. P. 693	47 27 07.82 69 12 14.18	153 37 265 21	T. P. 692	70.7	T. P. 711	47 27 24.14 69 13 06.71	132 17 273 13	T. P. 710	67.2
T. P. 694	47 27 09.08 69 12 15.10	48 44 76 06	Ref. Mon. S-166	226.5	T. P. 712	47 27 26.42 69 13 10.40	107 48 312 17	T. P. 709	52.9
Ref. Mon. S-166	47 27 06.41 69 12 19.58	228 44 228 44	T. P. 693	40.6	T. P. 713	47 27 27.47 69 13 15.23	124 24 287 48	T. P. 711	108.2
T. P. 695	47 27 08.83 69 12 16.60	28 41 256 06	T. P. 694	40.6	T. P. 714	47 27 30.89 69 13 22.61	150 29 304 24	T. P. 712	181.7
T. P. 696	47 27 07.69 69 12 17.52	82 13 208 41	Ref. Mon. C-174	486.0	T. P. 715	47 27 34.35 69 13 25.49	112 53 330 29	T. P. 713	52.9
T. P. 697	47 27 07.37 69 12 21.01	131 19 262 13	T. P. 695	110.7	T. P. 716	47 27 35.76 69 13 30.41	34 55 214 55	Ref. Mon. S-167	75.9
T. P. 698	47 27 08.17 69 12 22.36	177 31 311 19	T. P. 696	34.3	Ref. Mon. C-176	47 27 47.01 69 13 18.83	34 55 34 55	Ref. Mon. C-175	444.0
			T. P. 697	110.7				T. P. 714	104.5
								T. P. 715	106.3
								T. P. 716	104.5
								Monument 178	36.0
								Ref. Mon. C-176	423.7
								T. P. 715	111.8
								T. P. 716	423.7
								Monument 178	459.7



**GEOGRAPHIC POSITIONS OF MONUMENTS MARKING THE INTERNATIONAL BOUNDARY  
FROM LAKE POHENAGAMOOK TO THE SOUTHWEST BRANCH OF THE ST. JOHN RIVER**

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 178-----	47 27 34.80 69 13 31.39	214 54 43 34 54 43	T. P. 716----- Mon. 179-----	36.0 91.36	Mon. 202-A-----	47 16 03.382 69 25 19.710	214 46 09.0 34 46 09.0	Mon. 202----- Mon. 203-----	1,082.06 519.86
Mon. 179-----	47 27 32.37 69 13 33.88	214 54 41 34 54 41	Mon. 178----- Mon. 180-----	91.36 91.91	Mon. 203-----	47 15 49.553 69 25 33.812	214 45 58.6 34 45 58.6	Mon. 202-A----- Mon. 204-----	519.86 1,610.87
Mon. 180-----	47 27 29.93 69 13 36.40	214 54 39 34 54 39	Mon. 179----- Mon. 180-A-----	91.91 141.71	Mon. 204-----	47 15 06.700 69 26 17.495	214 45 26.5 34 45 26.5	Mon. 203----- Mon. 205-----	1,610.87 995.45
Mon. 180-A-----	47 27 26.17 69 13 40.27	214 54 36 34 54 36	Mon. 180----- Mon. 181-----	141.71 466.76	Mon. 205-----	47 14 40.217 69 26 44.480	214 45 06.7 34 44 58.9	Mon. 204----- Mon. 206-----	995.45 616.91
Mon. 181-----	47 27 13.78 69 13 53.02	214 54 27.0 34 54 27.0	Mon. 180-A----- Mon. 181-A-----	466.76 685.24	Mon. 206-----	47 14 23.803 69 27 01.198	214 44 46.6 34 44 46.6	Mon. 205----- Mon. 207-----	616.91 1,608.16
Mon. 181-A-----	47 26 55.580 69 14 11.735	214 54 13.2 34 54 13.2	Mon. 181----- Mon. 182-----	685.24 925.79	Mon. 207-----	47 13 41.012 69 27 44.767	214 44 14.6 34 44 14.6	Mon. 206----- Mon. 208-----	1,608.16 1,609.16
Mon. 182-----	47 26 30.994 69 14 37.018	214 53 54.6 34 53 54.6	Mon. 181-A----- Mon. 183-----	925.79 1,610.03	Mon. 208-----	47 12 58.189 69 28 28.343	214 43 42.6 34 43 42.6	Mon. 207----- Mon. 209-----	1,609.16 1,611.50
Mon. 183-----	47 25 48.234 69 15 20.971	214 53 22.2 34 53 22.2	Mon. 182----- Mon. 184-----	1,610.03 1,610.59	Mon. 209-----	47 12 15.301 69 29 11.963	214 43 10.6 34 43 10.6	Mon. 208----- Mon. 210-----	1,611.50 570.85
Mon. 184-----	47 25 05.454 69 16 04.920	214 52 49.9 34 52 49.9	Mon. 183----- Mon. 185-----	1,610.59 1,612.00	Mon. 210-----	47 12 00.106 69 29 27.410	214 42 59.3 34 42 56.5	Mon. 209----- Mon. 211-----	570.85 1,039.20
Mon. 185-----	47 24 22.632 69 16 48.887	214 52 17.5 34 52 17.5	Mon. 184----- Mon. 186-----	1,612.00 1,607.60	Mon. 211-----	47 11 32.445 69 29 55.523	214 42 35.9 34 42 35.9	Mon. 210----- Mon. 212-----	1,039.20 1,609.70
Mon. 186-----	47 23 39.922 69 17 32.715	214 51 45.3 34 51 45.3	Mon. 185----- Mon. 187-----	1,607.60 449.59	Mon. 212-----	47 10 49.594 69 30 39.054	214 42 04.0 34 42 04.0	Mon. 211----- Mon. 213-----	1,609.70 1,603.33
Mon. 187-----	47 23 27.977 69 17 44.969	214 51 36.3 34 51 42.3	Mon. 186----- Mon. 188-----	449.59 1,600.09	Mon. 213-----	47 10 06.907 69 31 22.394	214 41 32.2 34 41 32.2	Mon. 212----- Mon. 214-----	1,603.33 100.25
Mon. 188-----	47 22 57.153 69 18 16.581	214 51 19.0 34 51 19.0	Mon. 187----- Mon. 189-----	1,600.09 628.34	Mon. 214-----	47 10 04.238 69 31 25.103	214 41 30.2 34 41 30.2	Mon. 213----- Mon. 215-----	100.25 843.07
Mon. 189-----	47 22 40.457 69 18 33.699	214 51 06.4 34 51 07.5	Mon. 188----- Mon. 190-----	628.34 979.50	Mon. 215-----	47 09 41.791 69 31 47.884	214 41 13.5 34 41 13.5	Mon. 214----- Mon. 216-217-----	843.07 959.30
Mon. 190-----	47 22 14.428 69 19 00.378	214 50 47.9 34 50 47.9	Mon. 189----- Mon. 191-----	979.50 1,610.52	Mon. 216-217-----	47 09 16.247 69 32 13.799	214 40 54.5 34 40 54.5	Mon. 215----- Mon. 218-----	959.30 1,314.60
Mon. 191-----	47 21 31.628 69 19 44.228	214 50 15.6 34 50 15.6	Mon. 190----- Mon. 192-----	1,610.52 693.75	Mon. 218-----	47 08 41.240 69 32 49.301	214 40 29.5 34 40 29.5	Mon. 216-217----- Mon. 219-----	1,314.60 1,612.97
Mon. 192-----	47 21 13.189 69 20 03.111	214 50 01.7 34 50 01.7	Mon. 191----- Mon. 193-----	693.75 914.17	Mon. 219-----	47 07 58.283 69 33 32.843	214 39 57.6 34 39 56.5	Mon. 218----- Mon. 220-----	1,612.97 1,613.77
Mon. 193-----	47 20 48.891 69 20 27.988	214 49 43.4 34 49 43.4	Mon. 192----- Mon. 194-----	914.17 1,131.19	Mon. 220-----	47 07 15.300 69 34 16.387	214 39 24.6 34 39 24.6	Mon. 219----- Mon. 221-----	1,613.77 656.10
Mon. 194-----	47 20 18.823 69 20 58.762	214 49 20.8 34 49 20.8	Mon. 193----- Mon. 195-----	1,131.19 475.94	Mon. 221-----	47 06 57.823 69 34 34.085	214 39 11.6 34 39 30.6	Mon. 220----- Mon. 222-----	656.10 954.16
Mon. 195-----	47 20 06.171 69 21 11.707	214 49 11.3 34 49 11.3	Mon. 194----- Mon. 195-A-----	475.94 302.09	Mon. 222-----	47 06 32.407 69 34 59.821	214 39 11.7 34 39 11.7	Mon. 221----- Mon. 223-----	954.16 1,611.82
Mon. 195-A-----	47 19 58.141 69 21 19.923	214 49 05.3 34 49 05.3	Mon. 195----- Mon. 196-----	302.09 1,306.08	Mon. 223-----	47 05 49.469 69 35 43.279	214 38 39.9 34 38 39.9	Mon. 222----- Mon. 224-----	1,611.82 501.67
Mon. 196-----	47 19 23.419 69 21 55.435	214 48 39.2 34 48 39.2	Mon. 195-A----- Mon. 197-----	1,306.08 704.83	Mon. 224-----	47 05 36.104 69 35 56.801	214 38 30.0 34 38 29.4	Mon. 223----- Mon. 225-----	501.67 1,124.29
Mon. 197-----	47 19 04.680 69 22 14.594	214 48 25.1 34 48 25.1	Mon. 196----- Mon. 198-----	704.83 907.61	Mon. 225-----	47 05 06.150 69 36 27.099	214 38 07.2 34 38 07.2	Mon. 224----- Mon. 226-----	1,124.29 1,597.58
Mon. 198-----	47 18 40.549 69 22 39.259	214 48 07.0 34 48 07.0	Mon. 197----- Mon. 198-A-----	907.61 489.21	Mon. 226-----	47 04 23.582 69 37 10.134	214 37 35.7 34 37 35.7	Mon. 225----- Mon. 227-----	1,597.58 1,634.88
Mon. 198-A-----	47 18 27.541 69 22 52.551	214 47 57.2 34 47 57.2	Mon. 198----- Mon. 199-----	489.21 1,097.06	Mon. 227-----	47 03 40.016 69 37 54.155	214 37 03.5 34 37 03.5	Mon. 226----- Mon. 228-----	1,634.88 1,591.28
Mon. 199-----	47 17 58.369 69 23 22.352	214 47 35.3 34 47 35.3	Mon. 198-A----- Mon. 200-----	1,097.06 350.80	Mon. 228-----	47 02 57.607 69 38 36.983	214 36 32.2 34 36 32.2	Mon. 227----- Mon. 229-----	1,591.28 681.41
Mon. 200-----	47 17 49.040 69 23 31.880	214 47 28.3 34 47 28.3	Mon. 199----- Mon. 201-----	350.80 1,282.10	Mon. 229-----	47 02 39.445 69 38 55.317	214 36 18.8 34 36 18.8	Mon. 228----- Mon. 230-----	681.41 933.22
Mon. 201-----	47 17 14.944 69 24 06.693	214 47 02.7 34 47 02.7	Mon. 200----- Mon. 202-----	1,282.10 1,608.54	Mon. 230-----	47 02 14.570 69 39 20.420	214 36 00.4 34 36 00.4	Mon. 229----- Mon. 231-----	933.22 1,615.37
Mon. 202-----	47 16 32.163 69 24 50.352	214 46 30.6 34 46 30.6	Mon. 201----- Mon. 202-A-----	1,608.54 1,082.06	Mon. 231-----	47 01 31.510 69 40 03.857	214 35 28.6 34 35 28.6	Mon. 230----- Mon. 232-----	1,615.37 245.97

BOUNDARY MONUMENTS—LAKE POHENAGAMOOK TO SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 232.....	47 01 24.954 69 40 10.470	214 35 23.7 34 34 54.9	Mon. 231..... Mon. 233.....	245.97 1,392.75	Mon. 257.....	46 50 02.416 69 51 35.543	214 27 22.8 34 27 22.8	Mon. 256-A..... Mon. 258.....	779.49 634.07
Mon. 233.....	47 00 47.820 69 40 47.895	214 34 27.5 34 34 27.5	Mon. 232..... Mon. 234.....	1,392.75 388.31	Mon. 258.....	46 49 45.485 69 51 52.469	214 27 10.4 34 27 10.4	Mon. 257..... Mon. 259.....	634.07 1,044.19
Mon. 234.....	47 00 37.466 69 40 58.327	214 34 19.9 34 34 19.9	Mon. 233..... Mon. 235.....	388.31 570.96	Mon. 259.....	46 49 17.601 69 52 20.337	214 26 50.1 34 26 50.1	Mon. 258..... Mon. 260.....	1,044.19 1,378.29
Mon. 235.....	47 00 22.241 69 41 13.664	214 34 08.7 34 34 08.7	Mon. 234..... Mon. 236.....	570.96 635.13	Mon. 260.....	46 48 40.792 69 52 57.109	214 26 23.3 34 26 23.3	Mon. 259..... Mon. 261.....	1,378.29 523.82
Mon. 236.....	47 00 05.305 69 41 30.722	214 33 56.2 34 33 56.2	Mon. 235..... Mon. 237.....	635.13 1,616.84	Mon. 261.....	46 48 26.802 69 53 11.081	214 26 13.1 34 26 13.1	Mon. 260..... Mon. 262.....	523.82 41.41
Mon. 237.....	46 59 22.187 69 42 14.132	214 33 24.5 34 33 24.5	Mon. 236..... Mon. 238.....	1,616.84 608.47	Mon. 262.....	46 48 25.696 69 53 12.185	214 26 12.3 34 26 12.3	Mon. 261..... Mon. 263.....	41.41 1,229.79
Mon. 238.....	46 59 05.959 69 42 30.464	214 33 12.6 34 33 12.6	Mon. 237..... Mon. 239.....	608.47 70.65	Mon. 263.....	46 47 52.848 69 53 44.978	214 25 48.4 34 25 48.4	Mon. 262..... Mon. 264.....	1,229.79 592.06
Mon. 239.....	46 59 04.075 69 42 32.360	214 33 11.2 34 33 11.2	Mon. 238..... Mon. 240.....	70.65 933.82	Mon. 264.....	46 47 37.033 69 54 00.762	214 25 36.9 34 24 36.5	Mon. 263..... Mon. 265.....	592.06 1,022.83
Mon. 240.....	46 58 39.169 69 42 57.418	214 32 52.9 34 32 52.9	Mon. 239..... Mon. 241.....	933.82 1,614.18	Mon. 265.....	46 47 09.705 69 54 28.012	214 24 16.6 34 24 16.6	Mon. 264..... Mon. 266.....	1,022.83 1,615.08
Mon. 241.....	46 57 56.113 69 43 40.718	214 32 21.2 34 32 21.2	Mon. 240..... Mon. 242.....	1,614.18 1,613.65	Mon. 266.....	46 46 26.550 69 55 11.025	214 23 45.3 34 23 45.3	Mon. 265..... Mon. 267.....	1,615.08 1,612.98
Mon. 242.....	46 57 13.066 69 44 23.984	214 31 49.5 34 31 49.5	Mon. 241..... Mon. 242-A.....	1,613.65 1,488.51	Mon. 267.....	46 45 43.446 69 55 53.963	214 23 14.0 34 23 14.0	Mon. 266..... Mon. 268.....	1,612.98 1,615.02
Mon. 242-A.....	46 56 33.354 69 45 03.878	214 31 20.4 34 31 20.4	Mon. 242..... Mon. 243.....	1,488.51 126.53	Mon. 268.....	46 45 00.283 69 56 36.936	214 22 42.7 34 22 42.7	Mon. 267..... Mon. 269.....	1,615.02 700.28
Mon. 243.....	46 56 29.978 69 45 07.268	214 31 17.9 34 31 17.9	Mon. 242-A..... Mon. 243-A.....	126.53 946.84	Mon. 269.....	46 44 41.566 69 56 55.564	214 22 29.2 34 22 40.6	Mon. 268..... Mon. 270.....	700.28 912.87
Mon. 243-A.....	46 56 04.715 69 45 32.635	214 30 59.4 34 30 59.4	Mon. 243..... Mon. 244.....	946.84 667.95	Mon. 270.....	46 44 17.166 69 57 19.843	214 22 22.9 34 22 22.9	Mon. 269..... Mon. 271.....	912.87 1,620.18
Mon. 244.....	46 55 46.892 69 45 50.526	214 30 46.3 34 30 46.3	Mon. 243-A..... Mon. 245.....	667.95 1,014.54	Mon. 271.....	46 43 33.858 69 58 02.919	214 21 51.5 34 21 51.5	Mon. 270..... Mon. 272.....	1,620.18 1,609.81
Mon. 245.....	46 55 19.820 69 46 17.694	214 30 26.4 34 30 32.6	Mon. 244..... Mon. 246.....	1,014.54 599.24	Mon. 272.....	46 42 50.822 69 58 45.700	214 21 20.4 34 21 20.4	Mon. 271..... Mon. 273.....	1,609.81 1,615.90
Mon. 246.....	46 55 03.829 69 46 33.738	214 30 20.9 34 30 20.9	Mon. 245..... Mon. 247.....	599.24 1,613.30	Mon. 273.....	46 42 07.619 69 59 28.624	214 20 49.2 34 20 09.6	Mon. 272..... Mon. 274.....	1,615.90 507.86
Mon. 247.....	46 54 20.774 69 47 16.920	214 29 49.4 34 29 49.4	Mon. 246..... Mon. 247-A.....	1,613.30 369.42	Mon. 274.....	46 41 54.038 69 59 42.107	214 19 59.8 34 19 59.8	Mon. 273..... Mon. 275.....	507.86 183.49
Mon. 247-A.....	46 54 10.914 69 47 26.805	214 29 42.2 34 29 42.2	Mon. 247..... Mon. 248.....	369.42 399.66	Mon. 275.....	46 41 49.131 69 59 46.978	214 19 56.2 34 19 56.2	Mon. 274..... Mon. 276.....	183.49 180.46
Mon. 248.....	46 54 00.248 69 47 37.498	214 29 34.4 34 29 34.4	Mon. 247-A..... Mon. 249.....	399.66 351.88	Mon. 276.....	46 41 44.305 69 59 51.768	214 19 52.7 34 19 52.7	Mon. 275..... Mon. 276-A.....	180.46 3.00
Mon. 249.....	46 53 50.856 69 47 46.912	214 29 27.5 34 29 27.5	Mon. 248..... Mon. 250.....	351.88 490.93	Mon. 276-A.....	46 41 44.225 69 59 51.848	214 19 52.6 8 23 13.2	Mon. 276..... Mon. 277.....	3.00 713.94
Mon. 250.....	46 53 37.752 69 48 00.044	214 29 17.9 34 29 17.9	Mon. 249..... Mon. 250-A.....	490.93 551.67	Mon. 277.....	46 41 21.351 69 59 56.749	188 23 09.6 8 23 09.6	Mon. 276-A..... Mon. 278.....	713.94 91.80
Mon. 250-A.....	46 53 23.027 69 48 14.799	214 29 07.1 34 29 07.1	Mon. 250..... Mon. 251.....	551.67 81.22	Mon. 278.....	46 41 18.410 69 59 57.379	188 23 09.2 8 23 09.2	Mon. 277..... Mon. 279.....	91.80 91.93
Mon. 251.....	46 53 20.859 69 48 16.972	214 29 05.5 34 29 02.4	Mon. 250-A..... Mon. 251-A.....	81.22 38.29	Mon. 279.....	46 41 15.464 69 59 58.010	188 23 08.7 8 23 08.7	Mon. 278..... Mon. 280.....	91.93 183.20
Mon. 251-A.....	46 53 19.837 69 48 17.996	214 29 01.6 34 29 01.6	Mon. 251..... Mon. 252.....	38.29 943.05	Mon. 280.....	46 41 09.595 69 59 59.267	188 23 08.0 8 23 08.0	Mon. 279..... Mon. 281.....	183.20 1,337.91
Mon. 252.....	46 52 54.663 69 48 43.212	214 28 43.2 34 28 43.2	Mon. 251-A..... Mon. 253.....	943.05 1,615.53	Mon. 281.....	46 40 26.731 70 00 08.446	188 23 01.3 8 23 01.3	Mon. 280..... Mon. 281-A.....	1,337.91 147.86
Mon. 253.....	46 52 11.534 69 49 26.395	214 28 11.7 34 28 11.7	Mon. 252..... Mon. 254.....	1,615.53 1,614.02	Mon. 281-A.....	46 40 21.994 70 00 09.461	188 23 00.6 8 22 54.8	Mon. 281..... Mon. 282.....	147.86 1,465.08
Mon. 254.....	46 51 28.441 69 50 09.518	214 27 40.2 34 27 40.2	Mon. 253..... Mon. 255.....	1,614.02 1,028.74	Mon. 282.....	46 39 35.055 70 00 19.506	188 22 47.5 8 22 36.2	Mon. 281-A..... Mon. 283.....	1,465.08 1,612.97
Mon. 255.....	46 51 00.972 69 50 36.994	214 27 20.2 34 27 20.2	Mon. 254..... Mon. 256.....	1,028.74 586.15	Mon. 283.....	46 38 43.377 70 00 30.555	188 22 28.2 8 22 28.2	Mon. 282..... Mon. 283-A.....	1,612.97 186.45
Mon. 256.....	46 50 45.320 69 50 52.646	214 27 08.8 34 27 08.8	Mon. 255..... Mon. 256-A.....	586.15 827.24	Mon. 283-A.....	46 38 37.402 70 00 31.831	188 22 27.2 8 22 29.7	Mon. 283..... Mon. 284.....	186.45 1,425.82
Mon. 256-A.....	46 50 23.230 69 51 14.731	214 26 52.7 34 27 38.0	Mon. 256..... Mon. 257.....	827.24 779.49	Mon. 284.....	46 37 51.719 70 00 41.594	188 22 22.6 8 22 22.6	Mon. 283-A..... Mon. 285.....	1,425.82 940.93



BOUNDARY MONUMENTS—LAKE POHENAGAMOOK TO SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 285-----	46 37 21.572 70 00 48.034	188 22 17.9 8 22 17.9	Mon. 284----- Mon. 286-----	940.93 52.37	Mon. 297-----	46 30 56.932 70 02 09.998	188 20 58.3 8 20 58.3	Mon. 296----- Mon. 297-A-----	1,653.05 1,062.42
Mon. 286-----	46 37 19.894 70 00 48.392	188 22 17.6 8 22 17.6	Mon. 285----- Mon. 287-----	52.37 620.52	Mon. 297-A-----	46 30 22.890 70 02 17.233	188 20 53.1 8 21 22.3	Mon. 297----- Mon. 298-----	1,062.42 510.44
Mon. 287-----	46 37 00.013 70 00 52.638	188 22 14.5 8 22 14.5	Mon. 286----- Mon. 287-A-----	620.52 311.94	Mon. 298-----	46 30 06.535 70 02 20.712	188 21 19.8 8 21 19.8	Mon. 297-A----- Mon. 299-----	510.44 1,611.56
Mon. 287-A-----	46 36 50.018 70 00 54.772	188 22 13.1 8 22 07.8	Mon. 287----- Mon. 288-----	311.94 1,300.78	Mon. 299-----	46 29 14.897 70 02 31.692	188 21 11.8 8 21 11.8	Mon. 298----- Mon. 300-----	1,611.56 1,611.83
Mon. 288-----	46 36 08.341 70 01 03.667	188 22 01.3 8 22 01.3	Mon. 287-A----- Mon. 289-----	1,300.78 806.56	Mon. 300-----	46 28 23.251 70 02 42.668	188 21 03.8 8 21 03.8	Mon. 299----- Mon. 301-----	1,611.83 1,612.60
Mon. 289-----	46 35 42.498 70 01 09.181	188 21 57.3 8 21 57.3	Mon. 288----- Mon. 290-----	806.56 342.71	Mon. 301-----	46 27 31.579 70 02 53.643	188 20 55.9 8 20 55.9	Mon. 300----- Mon. 301-A-----	1,612.60 426.68
Mon. 290-----	46 35 31.517 70 01 11.523	188 21 55.6 8 21 55.6	Mon. 289----- Mon. 291-----	342.71 80.94	Mon. 301-A-----	46 27 17.907 70 02 56.546	188 20 53.8 8 20 37.6	Mon. 301----- Mon. 302-----	426.68 1,185.39
Mon. 291-----	46 35 28.924 70 01 12.079	188 21 55.2 8 21 55.2	Mon. 290----- Mon. 292-----	80.94 382.98	Mon. 302-----	46 26 39.923 70 03 04.605	188 20 31.8 8 20 31.8	Mon. 301-A----- Mon. 303-----	1,185.39 1,612.07
Mon. 292-----	46 35 16.653 70 01 14.696	188 21 53.3 8 21 53.3	Mon. 291----- Mon. 293-----	382.98 1,612.65	Mon. 303-----	46 25 48.267 70 03 15.559	188 20 23.8 8 20 36.7	Mon. 302----- Mon. 304-----	1,612.07 524.57
Mon. 293-----	46 34 24.983 70 01 25.713	188 21 45.3 8 21 45.3	Mon. 292----- Mon. 293-A-----	1,612.65 890.14	Mon. 304-----	46 25 31.458 70 03 19.124	188 20 34.1 8 20 34.1	Mon. 303----- Mon. 305-----	524.57 120.89
Mon. 293-A-----	46 33 56.462 70 01 31.789	188 21 40.9 8 21 38.7	Mon. 293----- Mon. 294-----	890.14 723.51	Mon. 305-----	46 25 27.584 70 03 19.946	188 20 33.5 8 20 33.5	Mon. 304----- Mon. 306-----	120.89 99.10
Mon. 294-----	46 33 33.280 70 01 36.728	188 21 35.1 8 21 35.1	Mon. 293-A----- Mon. 294-A-----	723.51 1,189.39	Mon. 306-----	46 25 24.408 70 03 20.619	188 20 33.0 8 20 33.0	Mon. 305----- Mon. 307-----	99.10 361.30
Mon. 294-A-----	46 32 55.171 70 01 44.845	188 21 29.2 8 21 16.6	Mon. 294----- Mon. 295-----	1,189.39 423.76	Mon. 307-----	46 25 12.831 70 03 23.074	188 20 31.2 8 20 31.2	Mon. 306----- Mon. 308-----	361.30 322.76
Mon. 295-----	46 32 41.593 70 01 47.735	188 21 14.5 8 21 14.5	Mon. 294-A----- Mon. 296-----	423.76 1,613.33	Mon. 308-----	46 25 02.489 70 03 25.267	188 20 29.6 8 20 29.6	Mon. 307----- T. P. 1-----	322.76 79.8
Mon. 296-----	46 31 49.899 70 01 58.734	188 21 06.5 8 21 06.5	Mon. 295----- Mon. 297-----	1,613.33 1,653.05					

GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS  
DEFINING THE INTERNATIONAL BOUNDARY THROUGH THE SOUTHWEST BRANCH OF  
THE ST. JOHN RIVER

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 1-----	46 24 59.93 70 03 25.81	188 20 340 26 8 20	Mon. 308----- T. P. 2----- Ref. Mon. 309-----	79.8 51.6 42.4	T. P. 23-----	46 24 33.47 70 05 13.46	228 47 97 06	T. P. 22----- T. P. 24-----	98.6 43.8
Ref. Mon. 309---	46 24 58.58 70 03 26.10	188 20 188 20	Mon. 308----- T. P. 1-----	122.2 42.4	T. P. 24-----	46 24 33.64 70 05 15.49	277 06 126 18	T. P. 23----- T. P. 25-----	43.8 47.0
T. P. 2-----	46 24 58.36 70 03 25.00	160 26 12 23	T. P. 1----- T. P. 3-----	51.6 60.7	T. P. 25-----	46 24 34.55 70 05 17.27	306 18 161 58	T. P. 24----- T. P. 26-----	47.0 81.2
T. P. 3-----	46 24 56.44 70 03 25.61	192 23 35 45	T. P. 2----- T. P. 4-----	60.7 96.4	T. P. 26-----	46 24 37.04 70 05 18.45	341 58 148 38	T. P. 25----- T. P. 27-----	81.2 40.3
T. P. 4-----	46 24 53.90 70 03 28.25	215 45 78 01	T. P. 3----- T. P. 5-----	96.4 179.9	T. P. 27-----	46 24 38.16 70 05 19.43	328 38 129 31	T. P. 26----- T. P. 28-----	40.3 52.8
T. P. 5-----	46 24 52.69 70 03 36.49	258 01 64 39	T. P. 4----- T. P. 6-----	179.9 198.2	T. P. 28-----	46 24 39.25 70 05 21.34	309 31 110 44	T. P. 27----- T. P. 29-----	52.8 38.5
T. P. 6-----	46 24 49.94 70 03 44.87	244 39 102 20	T. P. 5----- T. P. 7-----	198.2 185.1	T. P. 29-----	46 24 39.69 70 05 23.02	290 44 74 09	T. P. 28----- T. P. 30-----	38.5 56.4
T. P. 7-----	46 24 51.22 70 03 53.34	282 20 63 53	T. P. 6----- T. P. 8-----	185.1 68.7	T. P. 30-----	46 24 39.19 70 05 25.56	254 09 63 55	T. P. 29----- T. P. 31-----	56.4 43.1
T. P. 8-----	46 24 50.24 70 03 56.23	243 53 26 16	T. P. 7----- T. P. 9-----	68.7 154.2	T. P. 31-----	46 24 38.58 70 05 27.38	243 55 51 17	T. P. 30----- T. P. 32-----	43.1 85.2
T. P. 9-----	46 24 45.77 70 03 59.43	206 16 51 29	T. P. 8----- T. P. 10-----	154.2 101.0	T. P. 32-----	46 24 36.85 70 05 30.49	231 17 39 56	T. P. 31----- T. P. 33-----	85.2 99.4
T. P. 10-----	46 24 43.73 70 04 03.13	231 29 65 30 28 18 131 35	T. P. 9----- T. P. 11----- Ref. Mon. S-8----- Ref. Mon. C-8-----	101.0 105.2 55.8 87.7	T. P. 33-----	46 24 34.38 70 05 33.48	219 56 89 37	T. P. 32----- T. P. 34-----	99.4 70.5
Ref. Mon. S-8---	46 24 42.14 70 04 04.36	159 58 208 18	Ref. Mon. C-8----- T. P. 10-----	114.2 55.8	Ref. Mon. C-13--	46 24 40.70 70 05 13.82	66 11 40 68 16 30	Ref. Mon. S-14--- T. P. 34-----	530.2 527.9
Ref. Mon. C-8---	46 24 45.62 70 04 06.20	311 35 339 58	T. P. 10----- Ref. Mon. S-8-----	87.7 114.2	T. P. 35-----	46 24 34.57 70 05 38.29	280 59 106 04	T. P. 34----- T. P. 36-----	32.9 78.1
T. P. 11-----	46 24 42.32 70 04 07.61	245 30 79 39	T. P. 10----- T. P. 12-----	105.2 301.5	T. P. 36-----	46 24 35.27 70 05 41.80	286 04 109 39	T. P. 35----- T. P. 37-----	78.1 65.4
T. P. 12-----	46 24 40.56 70 04 21.49	259 39 56 36	T. P. 11----- T. P. 13-----	301.5 178.4	T. P. 37-----	46 24 35.98 70 05 44.69	289 39 77 22	T. P. 36----- T. P. 38-----	65.4 37.5
T. P. 13-----	46 24 37.38 70 04 28.46	236 36 66 30	T. P. 12----- T. P. 14-----	178.4 208.3	T. P. 38-----	46 24 35.72 70 05 46.40	257 22 64 06	T. P. 37----- T. P. 39-----	37.5 41.5
T. P. 14-----	46 24 34.69 70 04 37.41	246 30 94 37 13 21 193 05	T. P. 13----- T. P. 15----- Ref. Mon. 311----- Ref. Mon. 310-----	208.3 71.7 17.8 26.5	T. P. 39-----	46 24 35.13 70 05 48.15	244 06 90 26	T. P. 38----- T. P. 40-----	41.5 29.9
Ref. Mon. 310---	46 24 35.53 70 04 37.13	13 05 13 12	T. P. 14----- Ref. Mon. 311-----	26.5 44.3	T. P. 40-----	46 24 35.14 70 05 49.55	270 26 59 52	T. P. 39----- T. P. 41-----	29.9 40.8
Ref. Mon. 311---	46 24 34.13 70 04 37.60	193 12 193 21	Ref. Mon. 310----- T. P. 14-----	44.3 17.8	T. P. 41-----	46 24 34.48 70 05 51.20	239 52 9 07 74 50 274 00	T. P. 40----- T. P. 42----- Ref. Mon. C-16--- Ref. Mon. S-14---	40.8 25.9 20.6 314.2
T. P. 15-----	46 24 34.88 70 04 40.76	274 37 109 52	T. P. 14----- T. P. 16-----	71.7 53.8	Ref. Mon. C-16--	46 24 34.30 70 05 52.13	254 50 272 50	T. P. 41----- Ref. Mon. S-14---	20.6 333.7
T. P. 16-----	46 24 35.47 70 04 43.12	289 52 151 21	T. P. 15----- T. P. 17-----	53.8 73.3	Ref. Mon. S-14--	46 24 33.77 70 05 36.53	92 50 94 00	Ref. Mon. C-16--- T. P. 41-----	333.7 314.2
T. P. 17-----	46 24 37.55 70 04 44.77	331 21 121 19	T. P. 16----- T. P. 18-----	73.3 41.0	T. P. 42-----	46 24 33.65 70 05 51.39	189 07 318 24	T. P. 41----- T. P. 43-----	25.9 71.3
T. P. 18-----	46 24 38.24 70 04 46.41	301 19 104 28	T. P. 17----- T. P. 19-----	41.0 39.7	T. P. 43-----	46 24 31.92 70 05 49.17	138 24 289 02	T. P. 42----- T. P. 44-----	71.3 82.1
T. P. 19-----	46 24 38.56 70 04 48.21	284 28 92 23	T. P. 18----- T. P. 20-----	39.7 138.4	T. P. 44-----	46 24 31.05 70 05 45.54	109 02 276 00	T. P. 43----- T. P. 45-----	82.1 51.6
T. P. 20-----	46 24 38.75 70 04 54.68	272 23 81 13	T. P. 19----- T. P. 21-----	138.4 191.0	T. P. 45-----	46 24 30.88 70 05 43.14	96 00 324 45	T. P. 44----- T. P. 46-----	51.6 24.7
T. P. 21-----	46 24 37.81 70 05 03.52	261 13 63 27	T. P. 20----- T. P. 22-----	191.0 154.4	T. P. 46-----	46 24 30.22 70 05 42.47	144 45 5 21	T. P. 45----- T. P. 47-----	24.7 35.0
T. P. 22-----	46 24 35.57 70 05 09.99	243 27 48 47	T. P. 21----- T. P. 23-----	154.4 98.6	T. P. 47-----	46 24 29.10 70 05 42.63	185 21 40 43	T. P. 46----- T. P. 48-----	35.0 34.3



BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 48.....	46 24 28.25 70 05 43.67	220 43 67 18	T. P. 47..... T. P. 49.....	34.3 145.5	T. P. 80.....	46 24 09.49 70 06 01.53	246 16 35 46	T. P. 79..... T. P. 81.....	47.7 40.2
T. P. 49.....	46 24 26.44 70 05 49.96	247 18 33 50	T. P. 48..... T. P. 50.....	145.5 33.0	T. P. 81.....	46 24 08.43 70 06 02.64	215 46 313 53	T. P. 80..... T. P. 82.....	40.2 93.6
T. P. 50.....	46 24 25.55 70 05 50.82	213 50 346 18	T. P. 49..... T. P. 51.....	33.0 24.7	T. P. 82.....	46 24 06.33 70 05 59.48	133 53 331 20	T. P. 81..... T. P. 83.....	93.6 74.6
T. P. 51.....	46 24 24.77 70 05 50.55	166 18 288 24	T. P. 50..... T. P. 52.....	24.7 31.8	T. P. 83.....	46 24 04.21 70 05 57.80	151 20 26 50	T. P. 82..... T. P. 84.....	74.6 32.2
T. P. 52.....	46 24 24.44 70 05 49.13	108 24 244 04	T. P. 51..... T. P. 53.....	31.8 71.6	T. P. 84.....	46 24 03.28 70 05 58.48	206 50 116 06	T. P. 83..... T. P. 85.....	32.2 144.0
T. P. 53.....	46 24 25.46 70 05 46.12	64 04 299 16	T. P. 52..... T. P. 54.....	71.6 29.4	T. P. 85.....	46 24 05.33 70 06 04.54	296 06 59 12	T. P. 84..... T. P. 86.....	144.0 25.6
T. P. 54.....	46 24 24.99 70 05 44.92	119 16 337 38	T. P. 53..... T. P. 55.....	29.4 19.5	T. P. 86.....	46 24 04.90 70 06 05.57	239 12 355 04	T. P. 85..... T. P. 87.....	25.6 253.7
T. P. 55.....	46 24 24.41 70 05 44.57	157 38 10 35	T. P. 54..... T. P. 56.....	19.5 30.0	T. P. 87.....	46 23 56.72 70 06 04.55	175 04 8 26 123 14 284 40	T. P. 86..... T. P. 88..... Ref. Mon. C-18 Ref. Mon. S-16	253.7 51.7 108.6 182.2
T. P. 56.....	46 24 23.46 70 05 44.83	190 35 36 00	T. P. 55..... T. P. 57.....	30.0 58.2	Ref. Mon. C-18	46 23 58.65 70 06 08.80	291 35 303 14	Ref. Mon. S-16	287.2
T. P. 57.....	46 24 21.93 70 05 46.43	216 00 53 07	T. P. 56..... T. P. 58.....	58.2 126.2	Ref. Mon. S-16	46 23 55.22 70 05 56.30	104 40 111 35	T. P. 87..... Ref. Mon. C-18	182.2 287.2
T. P. 58.....	46 24 19.48 70 05 51.16	233 07 92 19	T. P. 57..... T. P. 59.....	126.2 281.7	T. P. 88.....	46 23 55.06 70 06 04.90	188 26 23 20	T. P. 87..... T. P. 89.....	51.7 175.9
T. P. 59.....	46 24 19.84 70 06 04.33	272 19 56 31	T. P. 58..... T. P. 60.....	281.7 31.5	T. P. 89.....	46 23 49.83 70 06 08.16	203 20 31 48	T. P. 88..... T. P. 90.....	175.9 190.2
T. P. 60.....	46 24 19.28 70 06 05.56	236 31 8 47	T. P. 59..... T. P. 61.....	31.5 30.7	T. P. 90.....	46 23 44.60 70 06 12.85	211 48 46 33	T. P. 89..... T. P. 91.....	190.2 125.0
T. P. 61.....	46 24 18.30 70 06 05.78	188 47 333 10	T. P. 60..... T. P. 62.....	30.7 33.2	T. P. 91.....	46 23 41.81 70 06 17.10	226 33 11 16	T. P. 90..... T. P. 92.....	125.0 97.0
T. P. 62.....	46 24 17.34 70 06 05.08	153 10 305 52	T. P. 61..... T. P. 63.....	33.2 73.7	T. P. 92.....	46 23 38.73 70 06 17.99	191 16 30 31	T. P. 91..... T. P. 93.....	97.0 35.0
T. P. 63.....	46 24 15.94 70 06 02.28	125 52 273 19	T. P. 62..... T. P. 64.....	73.7 37.6	T. P. 93.....	46 23 37.75 70 06 18.82	210 31 47 45	T. P. 92..... T. P. 94.....	35.0 43.8
T. P. 64.....	46 24 15.87 70 06 00.53	93 19 249 12	T. P. 63..... T. P. 65.....	37.6 66.1	T. P. 94.....	46 23 36.80 70 06 20.34	227 45 89 24	T. P. 93..... T. P. 95.....	43.8 70.6
T. P. 65.....	46 24 16.63 70 05 57.63	69 12 256 52	T. P. 64..... T. P. 66.....	66.1 39.5	T. P. 95.....	46 23 36.78 70 06 23.65	269 24 64 10	T. P. 94..... T. P. 96.....	70.6 51.2
T. P. 66.....	46 24 16.92 70 05 55.83	76 52 299 17	T. P. 65..... T. P. 67.....	39.5 26.0	T. P. 96.....	46 23 36.05 70 06 25.80	244 10 53 34	T. P. 95..... T. P. 97.....	51.2 62.5
T. P. 67.....	46 24 16.51 70 05 54.77	119 17 335 09	T. P. 66..... T. P. 68.....	26.0 29.8	T. P. 97.....	46 23 34.85 70 06 28.16	233 34 38 46	T. P. 96..... T. P. 98.....	62.5 38.9
T. P. 68.....	46 24 15.63 70 05 54.18	155 09 16 42	T. P. 67..... T. P. 69.....	29.8 28.4	T. P. 98.....	46 23 33.87 70 06 29.30	218 46 325 40	T. P. 97..... T. P. 99.....	38.9 91.0
T. P. 69.....	46 24 14.75 70 05 54.56	196 42 34 23	T. P. 68..... T. P. 70.....	28.4 41.6	T. P. 99.....	46 23 31.43 70 06 26.90	145 40 349 06	T. P. 98..... T. P. 100.....	91.0 68.1
T. P. 70.....	46 24 13.64 70 05 55.66	214 23 53 48	T. P. 69..... T. P. 71.....	41.6 55.3	T. P. 100.....	46 23 29.27 70 06 26.29	169 06 354 34	T. P. 99..... T. P. 101.....	68.1 62.4
T. P. 71.....	46 24 12.58 70 05 57.76	233 48 101 20	T. P. 70..... T. P. 72.....	55.3 91.9	T. P. 101.....	46 23 27.25 70 06 26.02	174 34 30 44	T. P. 100..... T. P. 102.....	62.4 35.4
T. P. 72.....	46 24 13.17 70 06 01.97	281 20 63 31	T. P. 71..... T. P. 73.....	91.9 17.3	T. P. 102.....	46 23 26.27 70 06 26.86	210 44 100 45	T. P. 101..... T. P. 103.....	35.4 33.3
T. P. 73.....	46 24 12.92 70 06 02.70	243 31 52 00	T. P. 72..... T. P. 74.....	17.3 19.8	T. P. 103.....	46 23 26.47 70 06 28.39	280 45 140 50	T. P. 102..... T. P. 104.....	33.3 85.0
T. P. 74.....	46 24 12.52 70 06 03.43	232 00 13 03	T. P. 73..... T. P. 75.....	19.8 26.2	T. P. 104.....	46 23 28.60 70 06 30.90	320 50 111 27	T. P. 103..... T. P. 105.....	85.0 59.8
T. P. 75.....	46 24 11.70 70 06 03.70	193 03 321 20	T. P. 74..... T. P. 76.....	26.2 30.8	T. P. 105.....	46 23 29.31 70 06 33.51	291 27 76 11	T. P. 104..... T. P. 106.....	59.8 29.5
T. P. 76.....	46 24 10.92 70 06 02.80	141 20 255 46	T. P. 75..... T. P. 77.....	30.8 46.3	T. P. 106.....	46 23 29.08 70 06 34.85	256 11 40 28	T. P. 105..... T. P. 107.....	29.5 48.1
T. P. 77.....	46 24 11.28 70 06 00.70	75 46 289 39	T. P. 76..... T. P. 78.....	46.3 25.0	T. P. 107.....	46 23 27.90 70 06 36.31	220 28 21 08	T. P. 106..... T. P. 108.....	48.1 85.0
T. P. 78.....	46 24 11.01 70 05 59.60	109 39 355 14	T. P. 77..... T. P. 79.....	25.0 28.0	T. P. 108.....	46 23 25.33 70 06 37.75	201 08 299 59	T. P. 107..... T. P. 109.....	85.0 125.4
T. P. 79.....	46 24 10.11 70 05 59.49	175 14 66 16	T. P. 78..... T. P. 80.....	28.0 47.7					

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 109.....	46 23 23.30 70 06 32.66	119 59 321 44 149 16 303 56	T. P. 108.....	125.4 30.4 322.3 73.2	T. P. 138.....	46 23 09.56 70 06 47.89	266 42 64 17	T. P. 137..... T. P. 139.....	122.6 66.6
Ref. Mon. C-20.....	46 23 32.27 70 06 40.37	324 39 329 16	Ref. Mon. S-18..... T. P. 109.....	389.8 322.3	T. P. 139.....	46 23 08.62 70 06 50.70	244 17 35 12	T. P. 138..... T. P. 140.....	66.6 49.9
Ref. Mon. S-18.....	46 23 21.98 70 06 29.82	123 56 144 39	T. P. 109..... Ref. Mon. C-20.....	73.2 389.8	T. P. 140.....	46 23 07.30 70 06 52.04	215 12 76 32	T. P. 139..... T. P. 141.....	49.9 28.7
T. P. 110.....	46 23 22.53 70 06 31.78	141 44 327 18	T. P. 109..... T. P. 111.....	30.4 65.2	T. P. 141.....	46 23 07.08 70 06 53.35	256 32 117 43	T. P. 140..... T. P. 142.....	28.7 35.6
T. P. 111.....	46 23 20.75 70 06 30.13	147 18 0 39	T. P. 110..... T. P. 112.....	65.2 22.2	T. P. 142.....	46 23 07.62 70 06 54.82	297 43 144 23	T. P. 141..... T. P. 143.....	35.6 23.9
T. P. 112.....	46 23 20.03 70 06 30.14	180 39 350 08	T. P. 111..... T. P. 113.....	22.2 36.0	T. P. 143.....	46 23 08.25 70 06 55.48	324 23 196 17	T. P. 142..... T. P. 144.....	23.9 65.7
T. P. 113.....	46 23 18.88 70 06 29.85	170 08 339 32	T. P. 112..... T. P. 114.....	36.0 49.2	T. P. 144.....	46 23 10.29 70 06 54.61	16 17 156 05 153 22 308 36	T. P. 143..... T. P. 145..... Ref. Mon. C-22..... Ref. Mon. C-21.....	65.7 61.0 401.5 14.3
T. P. 114.....	46 23 17.39 70 06 29.05	159 32 31 08	T. P. 113..... T. P. 115.....	49.2 44.7	Ref. Mon. C-21.....	46 23 10.01 70 06 54.09	128 36 152 31	T. P. 144..... Ref. Mon. C-22.....	14.3 414.3
T. P. 115.....	46 23 16.15 70 06 30.13	211 08 74 09	T. P. 114..... T. P. 116.....	44.7 28.9	Ref. Mon. C-22.....	46 23 21.91 70 07 03.04	332 31 333 22	Ref. Mon. C-21..... T. P. 144.....	414.3 401.5
T. P. 116.....	46 23 15.90 70 06 31.43	254 09 130 51	T. P. 115..... T. P. 117.....	28.9 50.8	T. P. 145.....	46 23 12.10 70 06 55.77	336 05 177 30	T. P. 144..... T. P. 146.....	61.0 158.2
T. P. 117.....	46 23 16.97 70 06 33.23	310 51 160 24	T. P. 116..... T. P. 118.....	50.8 21.7	T. P. 146.....	46 23 17.22 70 06 56.09	357 30 140 14	T. P. 145..... T. P. 147.....	158.2 21.7
T. P. 118.....	46 23 17.64 70 06 33.57	340 24 223 57	T. P. 117..... T. P. 119.....	21.7 65.8	T. P. 147.....	46 23 17.76 70 06 56.74	320 14 99 30	T. P. 146..... T. P. 148.....	21.7 82.7
T. P. 119.....	46 23 19.17 70 06 31.43	43 57 175 39	T. P. 118..... T. P. 120.....	65.8 20.4	T. P. 148.....	46 23 18.20 70 07 00.56	279 30 76 32	T. P. 147..... T. P. 149.....	82.7 34.2
T. P. 120.....	46 23 19.83 70 06 31.51	355 39 97 26	T. P. 119..... T. P. 121.....	20.4 58.3	T. P. 149.....	46 23 17.94 70 07 02.12	256 32 39 48	T. P. 148..... T. P. 150.....	34.2 50.4
T. P. 121.....	46 23 20.07 70 06 34.21	277 26 100 54	T. P. 120..... T. P. 122.....	58.3 78.8	T. P. 150.....	46 23 16.69 70 07 03.63	219 48 355 18	T. P. 149..... T. P. 151.....	50.4 52.2
T. P. 122.....	46 23 20.55 70 06 37.83	280 54 80 32	T. P. 121..... T. P. 123.....	78.8 22.0	T. P. 151.....	46 23 15.00 70 07 03.43	175 18 298 25	T. P. 150..... T. P. 152.....	52.2 87.6
T. P. 123.....	46 23 20.44 70 06 38.85	260 32 6 27	T. P. 122..... T. P. 124.....	22.0 28.8	T. P. 152.....	46 23 13.65 70 06 59.82	118 25 347 11	T. P. 151..... T. P. 153.....	87.6 46.6
T. P. 124.....	46 23 19.51 70 06 39.00	186 27 328 45	T. P. 123..... T. P. 125.....	28.8 80.7	T. P. 153.....	46 23 12.18 70 06 59.34	167 11 18 02	T. P. 152..... T. P. 154.....	46.6 81.9
T. P. 125.....	46 23 17.28 70 06 37.04	148 45 8 33	T. P. 124..... T. P. 126.....	80.7 41.7	T. P. 154.....	46 23 09.66 70 07 00.52	198 02 45 14	T. P. 153..... T. P. 155.....	81.9 115.2
T. P. 126.....	46 23 15.94 70 06 37.33	188 33 52 27	T. P. 125..... T. P. 127.....	41.7 43.9	T. P. 155.....	46 23 07.03 70 07 04.35	225 14 54 25	T. P. 154..... T. P. 156.....	115.2 498.9
T. P. 127.....	46 23 15.07 70 06 38.96	232 27 101 13	T. P. 126..... T. P. 128.....	43.9 24.9	T. P. 156.....	46 22 57.63 70 07 23.34	234 24 61 45	T. P. 155..... T. P. 157.....	498.9 140.2
T. P. 128.....	46 23 15.23 70 06 40.10	281 13 129 26	T. P. 127..... T. P. 129.....	24.9 58.6	T. P. 157.....	46 22 55.48 70 07 29.12	241 45 69 11	T. P. 156..... T. P. 158.....	140.2 136.6
T. P. 129.....	46 23 16.44 70 06 42.22	309 26 157 15	T. P. 128..... T. P. 130.....	58.6 70.4	T. P. 158.....	46 22 53.91 70 07 35.10	249 11 46 10	T. P. 157..... T. P. 159.....	136.6 44.3
T. P. 130.....	46 23 18.54 70 06 43.50	337 15 63 38	T. P. 129..... T. P. 131.....	70.4 72.3	T. P. 159.....	46 22 52.91 70 07 36.59	226 10 32 43	T. P. 158..... T. P. 160.....	44.3 114.2
T. P. 131.....	46 23 17.50 70 06 46.53	243 38 47 09	T. P. 130..... T. P. 132.....	72.3 26.7	T. P. 160.....	46 22 49.80 70 07 39.48	212 43 27 05 130 09 289 45	T. P. 159..... T. P. 161..... Ref. Mon. C-24..... Ref. Mon. S-20.....	114.2 182.4 398.8 52.6
T. P. 132.....	46 23 16.91 70 06 47.45	227 09 14 00	T. P. 131..... T. P. 133.....	26.7 30.2	Ref. Mon. C-24.....	46 22 58.13 70 07 53.75	307 48 310 08	Ref. Mon. S-20..... T. P. 160.....	448.5 398.8
T. P. 133.....	46 23 15.96 70 06 47.79	194 00 296 34	T. P. 132..... T. P. 134.....	30.2 66.2	Ref. Mon. S-20.....	46 22 49.22 70 07 37.16	109 45 127 48	T. P. 160..... Ref. Mon. C-24.....	52.6 448.5
T. P. 134.....	46 23 15.01 70 06 45.02	116 34 322 58	T. P. 133..... T. P. 135.....	66.2 137.6	T. P. 161.....	46 22 44.54 70 07 43.37	207 05 354 21	T. P. 160..... T. P. 162.....	182.4 291.2
T. P. 135.....	46 23 11.45 70 06 41.14	142 58 352 54	T. P. 134..... T. P. 136.....	137.6 34.1	T. P. 162.....	46 22 35.16 70 07 42.03	174 21 355 47	T. P. 161..... T. P. 163.....	291.2 482.0
T. P. 136.....	46 23 10.35 70 06 40.94	172 54 56 12	T. P. 135..... T. P. 137.....	34.1 31.3	T. P. 163.....	46 22 19.59 70 07 40.37	175 47 332 00 109 42 220 28	T. P. 162..... T. P. 164..... Ref. Mon. C-26..... Ref. Mon. S-22.....	482.0 72.6 189.4 180.7
T. P. 137.....	46 23 09.79 70 06 42.16	236 12 86 42	T. P. 136..... T. P. 138.....	31.3 122.6					



BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
Ref. Mon. C-26	° ' " 46 22 21.66 70 07 48.71	° ' " 256 01 289 42	Ref. Mon. S-22 T. P. 163	304.6 189.4	T. P. 189	° ' " 46 21 49.64 70 08 27.46	° ' " 137 36 14 15	T. P. 188 T. P. 190	121.4 79.6
Ref. Mon. S-22	46 22 24.04 70 07 34.88	40 28 76 01	T. P. 163 Ref. Mon. C-26	180.7 304.6	T. P. 190	46 21 47.14 70 08 28.37	194 15 35 40	T. P. 189 T. P. 191	79.6 64.2
T. P. 164	46 22 17.51 70 07 38.78	152 00 344 54	T. P. 163 T. P. 165	72.6 33.5	T. P. 191	46 21 45.45 70 08 30.12	215 40 57 26	T. P. 190 T. P. 192	64.2 72.1
T. P. 165	46 22 16.46 70 07 38.37	164 54 30 06	T. P. 164 T. P. 166	33.5 42.3	T. P. 192	46 21 44.19 70 08 32.97	237 26 91 04	T. P. 191 T. P. 193	72.1 116.8
T. P. 166	46 22 15.28 70 07 39.36	210 06 87 23	T. P. 165 T. P. 167	42.3 110.4	T. P. 193	46 21 44.26 70 08 38.43	271 04 95 39	T. P. 192 T. P. 194	116.8 88.4
T. P. 167	46 22 15.12 70 07 44.52	267 23 68 28	T. P. 166 T. P. 168	110.4 31.4	T. P. 194	46 21 44.54 70 08 42.54	275 39 56 03	T. P. 193 T. P. 195	88.4 33.1
T. P. 168	46 22 14.74 70 07 45.89	248 28 39 49	T. P. 167 T. P. 169	31.4 42.2	T. P. 195	46 21 43.95 70 08 43.83	236 03 29 43	T. P. 194 T. P. 196	33.1 162.4
T. P. 169	46 22 13.69 70 07 47.15	219 49 359 53	T. P. 168 T. P. 170	42.2 86.6	T. P. 196	46 21 39.38 70 08 47.60	209 43 43 48	T. P. 195 T. P. 197	162.4 119.5
T. P. 170	46 22 10.89 70 07 47.14	179 53 51 32	T. P. 169 T. P. 171	86.6 31.2	T. P. 197	46 21 36.59 70 08 51.46	223 48 17 19	T. P. 196 T. P. 198	119.5 73.1
T. P. 171	46 22 10.26 70 07 48.29	231 32 101 02	T. P. 170 T. P. 172	31.2 178.6	T. P. 198	46 21 34.33 70 08 52.48	197 19 51 12	T. P. 197 T. P. 199	73.1 77.7
T. P. 172	46 22 11.37 70 07 56.49	281 02 58 34	T. P. 171 T. P. 173	178.6 178.7	T. P. 199	46 21 32.75 70 08 55.31	231 12 78 58	T. P. 198 T. P. 200	77.7 59.8
T. P. 173	46 22 08.35 70 08 03.62	238 34 93 56	T. P. 172 T. P. 174	178.7 59.8	T. P. 200	46 21 32.38 70 08 58.06	258 58 102 44	T. P. 199 T. P. 201	59.8 210.8
T. P. 174	46 22 08.48 70 08 06.41	273 56 127 52 30 47	T. P. 173 T. P. 175 Ref. Mon. S-25	59.8 81.2 183.3	T. P. 201	46 21 33.88 70 09 07.68	282 44 120 43 152 14 329 34	T. P. 200 T. P. 202 Ref. Mon. C-30 Ref. Mon. S-29	210.8 119.0 286.9 201.6
Ref. Mon. S-25	46 22 03.38 70 08 10.80	31 45 40 210 47	Ref. Mon. S-26 T. P. 174	511.9 183.3	Ref. Mon. C-30	46 21 42.10 70 09 13.93	332 14 331 08	T. P. 201 Ref. Mon. S-29	286.9 488.4
T. P. 175	46 22 10.09 70 08 09.41	307 52 169 02	T. P. 174 T. P. 176	81.2 52.2	Ref. Mon. S-29	46 21 28.25 70 09 02.90	149 34 151 08	T. P. 201 Ref. Mon. C-30	201.6 488.4
T. P. 176	46 22 11.75 70 08 09.88	349 02 127 32	T. P. 175 T. P. 177	52.2 30.1	T. P. 202	46 21 35.85 70 09 12.46	300 43 104 42	T. P. 201 T. P. 203	119.0 111.3
T. P. 177	46 22 12.35 70 08 10.99	307 32 74 54	T. P. 176 T. P. 178	30.1 52.3	T. P. 203	46 21 36.76 70 09 17.50	284 42 138 55	T. P. 202 T. P. 204	111.3 175.3
T. P. 178	46 22 11.91 70 08 13.36	254 54 49 53	T. P. 177 T. P. 179	52.3 112.5	T. P. 204	46 21 41.04 70 09 22.89	318 55 107 45	T. P. 203 T. P. 205	175.3 55.0
T. P. 179	46 22 09.56 70 08 17.38	229 53 29 57	T. P. 178 T. P. 180	112.5 96.4	T. P. 205	46 21 41.59 70 09 25.34	287 45 42 50	T. P. 204 T. P. 206	55.0 81.3
T. P. 180	46 22 06.85 70 08 19.63	209 57 3 01	T. P. 179 T. P. 181	96.4 44.9	T. P. 206	46 21 39.66 70 09 27.92	222 50 67 50	T. P. 205 T. P. 207	81.3 49.6
T. P. 181	46 22 05.40 70 08 19.74	183 01 350 00	T. P. 180 T. P. 182	44.9 45.4	T. P. 207	46 21 39.05 70 09 30.07	247 50 50 15	T. P. 206 T. P. 208	49.6 32.3
T. P. 182	46 22 03.96 70 08 19.37	170 00 1 12	T. P. 181 T. P. 183	45.4 46.7	T. P. 208	46 21 38.38 70 09 31.23	230 15 345 01	T. P. 207 T. P. 209	32.3 79.3
T. P. 183	46 22 02.44 70 08 19.42	181 12 19 03	T. P. 182 T. P. 184	46.7 111.6	T. P. 209	46 21 35.90 70 09 30.27	165 01 13 36	T. P. 208 T. P. 210	79.3 43.4
T. P. 184	46 21 59.03 70 08 21.12	199 03 38 30	T. P. 183 T. P. 185	111.6 102.5	T. P. 210	46 21 34.53 70 09 30.75	193 36 61 28	T. P. 209 T. P. 211	43.4 58.5
T. P. 185	46 21 56.43 70 08 24.11	218 30 66 54	T. P. 184 T. P. 186	102.5 124.9	T. P. 211	46 21 33.63 70 09 33.16	241 28 102 14	T. P. 210 T. P. 212	58.5 77.3
T. P. 186	46 21 54.84 70 08 29.48	246 54 44 12 118 37 322 53	T. P. 185 T. P. 187 Ref. Mon. C-28 Ref. Mon. S-26	124.9 50.7 190.4 215.2	T. P. 212	46 21 34.16 70 09 36.69	282 14 118 32	T. P. 211 T. P. 213	77.3 41.4
Ref. Mon. C-28	46 21 57.80 70 08 37.30	298 37 311 30	T. P. 186 Ref. Mon. S-26	190.4 396.6	T. P. 213	46 21 34.80 70 09 38.39	298 32 147 34	T. P. 212 T. P. 214	41.4 39.6
Ref. Mon. S-26	46 21 49.28 70 08 23.41	131 30 142 53	Ref. Mon. C-28 T. P. 186	396.6 215.2	T. P. 214	46 21 35.88 70 09 39.38	327 34 212 16	T. P. 213 T. P. 215	39.6 81.9
T. P. 187	46 21 53.66 70 08 31.14	224 12 5 11	T. P. 186 T. P. 188	50.7 34.7	T. P. 215	46 21 38.13 70 09 37.34	32 16 170 29	T. P. 214 T. P. 216	81.9 33.0
T. P. 188	46 21 52.54 70 08 31.28	185 11 317 36	T. P. 187 T. P. 189	34.7 121.4	T. P. 216	46 21 39.18 70 09 37.60	350 29 130 51	T. P. 215 T. P. 217	33.0 32.1

BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
 ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 217-----	46 21 39.86 70 09 38.73	310 51 105 37	T. P. 216----- T. P. 218-----	32.1 64.4	Ref. Mon. S-35-----	46 21 04.65 70 10 50.88	141 39 146 39	Ref. Mon. C-34----- T. P. 238-----	260.6 176.8
T. P. 218-----	46 21 40.42 70 09 41.63	285 37 82 35 173 50 345 56	T. P. 217----- T. P. 219----- Ref. Mon. C-31----- Ref. Mon. S-31-----	64.4 55.5 106.2 404.7	T. P. 239-----	46 21 08.22 70 10 56.26	205 43 56 57	T. P. 238----- T. P. 240-----	41.5 73.1
Ref. Mon. C-31-----	46 21 43.84 70 09 42.16	347 34 10 353 50	Ref. Mon. S-31----- T. P. 218-----	510.1 106.2	T. P. 240-----	46 21 06.93 70 10 59.13	236 57 72 29	T. P. 239----- T. P. 241-----	73.1 68.0
Ref. Mon. S-31-----	46 21 27.71 70 09 37.03	165 56 167 34 10	T. P. 218----- Ref. Mon. C-31-----	404.7 510.1	T. P. 241-----	46 21 06.27 70 11 02.16	252 29 115 35	T. P. 240----- T. P. 242-----	68.0 84.4
T. P. 219-----	46 21 40.19 70 09 44.21	262 35 50 28	T. P. 218----- T. P. 220-----	55.5 78.2	T. P. 242-----	46 21 07.45 70 11 05.72	295 35 45 35	T. P. 241----- T. P. 243-----	84.4 135.3
T. P. 220-----	46 21 38.58 70 09 47.03	230 28 2 28	T. P. 219----- T. P. 221-----	78.2 100.2	T. P. 243-----	46 21 04.38 70 11 10.24	225 35 56 19	T. P. 242----- T. P. 244-----	135.3 219.8
T. P. 221-----	46 21 35.33 70 09 47.23	182 28 34 50	T. P. 220----- T. P. 222-----	100.2 74.4	T. P. 244-----	46 21 00.43 70 11 18.80	236 19 80 17	T. P. 243----- T. P. 245-----	219.8 49.5
T. P. 222-----	46 21 33.36 70 09 49.22	214 50 84 47	T. P. 221----- T. P. 223-----	74.4 89.1	T. P. 245-----	46 21 00.16 70 11 21.08	260 17 126 04	T. P. 244----- T. P. 246-----	49.5 101.5
T. P. 223-----	46 21 33.09 70 09 53.37	264 47 48 23	T. P. 222----- T. P. 224-----	89.1 105.8	T. P. 246-----	46 21 02.10 70 11 24.91	306 04 76 09	T. P. 245----- T. P. 247-----	101.5 122.0
T. P. 224-----	46 21 30.82 70 09 57.07	228 23 348 46	T. P. 223----- T. P. 225-----	105.8 34.6	T. P. 247-----	46 21 01.15 70 11 30.45	256 09 34 52	T. P. 246----- T. P. 248-----	122.0 132.3
T. P. 225-----	46 21 29.72 70 09 56.75	168 46 39 57	T. P. 224----- T. P. 226-----	34.6 103.0	T. P. 248-----	46 20 57.64 70 11 33.99	214 52 6 18	T. P. 247----- T. P. 249-----	132.3 22.8
T. P. 226-----	46 21 27.17 70 09 59.84	219 57 77 54	T. P. 225----- T. P. 227-----	103.0 43.0	T. P. 249-----	46 20 56.90 70 11 34.11	186 18 281 46	T. P. 248----- T. P. 250-----	22.8 39.9
T. P. 227-----	46 21 26.87 70 10 01.81	257 54 136 41	T. P. 226----- T. P. 228-----	43.0 193.5	T. P. 250-----	46 20 56.64 70 11 32.28	101 46 340 29	T. P. 249----- T. P. 251-----	39.9 100.9
T. P. 228-----	46 21 31.43 70 10 08.02	316 41 113 52	T. P. 227----- T. P. 229-----	193.5 213.8	T. P. 251-----	46 20 53.56 70 11 30.70	160 29 0 24 98 06 305 26	T. P. 250----- T. P. 252----- Ref. Mon. C-36----- Ref. Mon. S-37-----	100.9 22.5 111.0 161.5
T. P. 229-----	46 21 34.24 70 10 17.17	293 52 87 48 268 36 328 04	T. P. 228----- T. P. 230----- Ref. Mon. C-32----- Ref. Mon. S-32-----	213.8 70.8 86.3 397.8	Ref. Mon. C-36-----	46 20 54.07 70 11 35.84	278 06 294 21	T. P. 251----- Ref. Mon. S-37-----	111.0 265.1
Ref. Mon. C-32-----	46 21 34.30 70 10 13.14	88 36 339 55	T. P. 229----- Ref. Mon. S-32-----	86.3 361.6	Ref. Mon. S-37-----	46 20 50.53 70 11 24.55	114 21 125 26	Ref. Mon. C-36----- T. P. 251-----	265.1 161.5
Ref. Mon. S-32-----	46 21 23.30 70 10 07.33	148 04 159 55	T. P. 229----- Ref. Mon. C-32-----	397.8 361.6	T. P. 252-----	46 20 52.83 70 11 30.71	180 24 24 20	T. P. 251----- T. P. 253-----	22.5 41.2
T. P. 230-----	46 21 34.15 70 10 20.48	267 48 75 59	T. P. 229----- T. P. 231-----	70.8 90.0	T. P. 253-----	46 20 51.62 70 11 31.50	204 20 71 17	T. P. 252----- T. P. 254-----	41.2 89.6
T. P. 231-----	46 21 33.44 70 10 24.57	255 59 59 12	T. P. 230----- T. P. 232-----	90.0 112.2	T. P. 254-----	46 20 50.69 70 11 35.47	251 17 42 06	T. P. 253----- T. P. 255-----	89.6 62.5
T. P. 232-----	46 21 31.58 70 10 29.07	239 12 55 29	T. P. 231----- T. P. 233-----	112.2 112.2	T. P. 255-----	46 20 49.18 70 11 37.43	222 06 12 27	T. P. 254----- T. P. 256-----	62.5 107.2
T. P. 233-----	46 21 29.52 70 10 33.40	235 29 20 32	T. P. 232----- T. P. 234-----	112.2 178.4	T. P. 256-----	46 20 45.79 70 11 38.51	192 27 34 12	T. P. 255----- T. P. 257-----	107.2 225.9
T. P. 234-----	46 21 24.11 70 10 36.32	200 32 36 42	T. P. 233----- T. P. 235-----	178.4 142.1	T. P. 257-----	46 20 39.74 70 11 44.45	214 12 26 12	T. P. 256----- T. P. 258-----	225.9 121.9
T. P. 235-----	46 21 20.42 70 10 40.30	216 42 67 06 138 54 293 43	T. P. 234----- T. P. 236----- Ref. Mon. C-33----- Ref. Mon. S-34-----	142.1 271.2 149.1 271.8	T. P. 258-----	46 20 36.20 70 11 46.97	206 12 339 49	T. P. 257----- T. P. 259-----	121.9 133.5
Ref. Mon. C-33-----	46 21 24.06 70 10 44.88	302 35 318 54	Ref. Mon. S-34----- T. P. 235-----	411.6 149.1	T. P. 259-----	46 20 32.14 70 11 44.82	159 49 20 01	T. P. 258----- T. P. 260-----	133.5 104.9
Ref. Mon. S-34-----	46 21 16.88 70 10 28.66	113 43 122 35	T. P. 235----- Ref. Mon. C-33-----	271.8 411.6	T. P. 260-----	46 20 28.95 70 11 46.49	200 01 4 54	T. P. 259----- T. P. 261-----	104.9 49.0
T. P. 236-----	46 21 17.00 70 10 51.98	247 06 42 22	T. P. 235----- T. P. 237-----	271.2 69.2	T. P. 261-----	46 20 27.37 70 11 46.69	184 54 36 10	T. P. 260----- T. P. 262-----	49.0 34.8
T. P. 237-----	46 21 15.35 70 10 54.16	222 22 8 25	T. P. 236----- T. P. 238-----	69.2 184.6	T. P. 262-----	46 20 26.46 70 11 47.65	216 10 59 53 131 31 255 39	T. P. 261----- T. P. 263----- Ref. Mon. C-38----- Ref. Mon. S-39-----	34.8 101.3 137.2 170.9
T. P. 238-----	46 21 09.43 70 10 55.42	188 25 25 43 131 18 326 39	T. P. 237----- T. P. 239----- Ref. Mon. C-34----- Ref. Mon. S-35-----	184.6 41.5 85.8 176.8	Ref. Mon. C-38-----	46 20 29.41 70 11 52.45	280 16 311 31	Ref. Mon. S-39----- T. P. 262-----	272.7 137.2
Ref. Mon. C-34-----	46 21 11.27 70 10 58.44	311 18 321 39	T. P. 238----- Ref. Mon. S-35-----	85.8 260.6	Ref. Mon. S-39-----	46 20 27.83 70 11 39.91	75 39 100 17	T. P. 262----- Ref. Mon. C-38-----	170.9 272.7
					T. P. 263-----	46 20 24.82 70 11 51.74	239 53 33 38	T. P. 262----- T. P. 264-----	101.3 163.4



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 264.....	46 20 20.41 70 11 55.98	213 38 47 37	T. P. 263..... T. P. 265.....	163.4 146.6	T. P. 288.....	46 19 03.29 70 12 22.40	147 12 307 22	T. P. 287..... T. P. 289.....	151.0 126.7
T. P. 265.....	46 20 17.21 70 12 01.04	227 37 24 56	T. P. 264..... T. P. 266.....	146.6 42.9	T. P. 289.....	46 19 00.80 70 12 17.69	127 22 11 43	T. P. 288..... T. P. 290.....	126.7 67.3
T. P. 266.....	46 20 15.95 70 12 01.89	204 56 44 44	T. P. 265..... T. P. 267.....	42.9 107.9	T. P. 290.....	46 18 58.66 70 12 18.33	191 43 336 17	T. P. 289..... T. P. 291.....	67.3 98.7
T. P. 267.....	46 20 13.47 70 12 05.44	224 44 23 29	T. P. 266..... T. P. 268.....	107.9 208.2	T. P. 291.....	46 18 55.74 70 12 16.48	156 17 314 47	T. P. 290..... T. P. 292.....	98.7 86.3
T. P. 268.....	46 20 07.28 70 12 09.32	203 29 54 48 128 28 311 46	T. P. 267..... T. P. 269..... Ref. Mon. C-40..... Ref. Mon. S-41.....	208.2 209.5 143.6 116.3	T. P. 292.....	46 18 53.77 70 12 13.61	134 47 344 20	T. P. 291..... T. P. 293.....	86.3 54.6
Ref. Mon. C-40.....	46 20 10.18 70 12 14.58	308 28 309 56	T. P. 268..... Ref. Mon. S-41.....	143.6 259.9	T. P. 293.....	46 18 52.07 70 12 12.92	164 20 2 54	T. P. 292..... T. P. 294.....	54.6 55.9
Ref. Mon. S-41.....	46 20 04.77 70 12 05.26	129 56 131 46	Ref. Mon. C-40..... T. P. 268.....	259.9 116.3	T. P. 294.....	46 18 50.26 70 12 13.06	182 54 16 28	T. P. 293..... T. P. 295.....	55.9 99.6
T. P. 269.....	46 20 03.37 70 12 17.32	234 48 37 23	T. P. 268..... T. P. 270.....	209.5 116.5	T. P. 295.....	46 18 47.16 70 12 14.38	196 28 22 45	T. P. 294..... T. P. 296.....	99.6 56.9
T. P. 270.....	46 20 00.37 70 12 20.63	217 23 8 08	T. P. 269..... T. P. 271.....	116.5 79.3	T. P. 296.....	46 18 45.46 70 12 15.41	202 45 30 32	T. P. 295..... T. P. 297.....	56.9 96.6
T. P. 271.....	46 19 57.83 70 12 21.16	188 08 45 50	T. P. 270..... T. P. 272.....	79.3 130.2	T. P. 297.....	46 18 42.77 70 12 17.70	210 32 22 35 89 41 276 10	T. P. 296..... T. P. 298..... Ref. Mon. C-48..... Ref. Mon. S-49.....	96.6 135.8 56.1 200.2
T. P. 272.....	46 19 54.89 70 12 25.52	225 50 64 44	T. P. 271..... T. P. 273.....	130.2 82.1	Ref. Mon. C-48.....	46 18 42.76 70 12 20.32	269 41 274 45	T. P. 297..... Ref. Mon. S-49.....	56.1 256.0
T. P. 273.....	46 19 53.76 70 12 29.00	244 44 29 36	T. P. 272..... T. P. 274.....	82.1 204.2	Ref. Mon. S-49.....	46 18 42.07 70 12 08.40	94 45 96 10	Ref. Mon. C-48..... T. P. 297.....	256.0 200.2
T. P. 274.....	46 19 48.00 70 12 33.71	209 36 17 38 78 38 310 38	T. P. 273..... T. P. 275..... Ref. Mon. C-42..... Ref. Mon. S-43.....	204.2 47.2 65.5 231.2	T. P. 298.....	46 18 38.71 70 12 20.14	202 35 44 06	T. P. 297..... T. P. 299.....	135.8 123.3
Ref. Mon. C-42.....	46 19 47.59 70 12 36.72	258 38 299 52	T. P. 274..... Ref. Mon. S-43.....	65.5 276.4	T. P. 299.....	46 18 35.84 70 12 24.15	224 06 0 49	T. P. 298..... T. P. 300.....	123.3 267.4
Ref. Mon. S-43.....	46 19 43.13 70 12 25.51	119 52 130 38	Ref. Mon. C-42..... T. P. 274.....	276.4 231.2	T. P. 300.....	46 18 27.18 70 12 24.32	180 49 13 15 47 55 218 45	T. P. 299..... T. P. 301..... Ref. Mon. C-50..... Ref. Mon. S-50.....	267.4 132.7 170.0 281.0
T. P. 275.....	46 19 46.55 70 12 34.38	197 38 327 27	T. P. 274..... T. P. 276.....	47.2 189.8	Ref. Mon. C-50.....	46 18 23.49 70 12 30.22	222 12 227 55	Ref. Mon. S-50..... T. P. 300.....	449.7 170.0
T. P. 276.....	46 19 41.37 70 12 29.61	147 27 345 34	T. P. 275..... T. P. 277.....	189.8 301.2	Ref. Mon. S-50.....	46 18 34.28 70 12 16.10	38 45 42 12	T. P. 300..... Ref. Mon. C-50.....	281.0 449.7
T. P. 277.....	46 19 31.92 70 12 26.10	165 34 336 33	T. P. 276..... T. P. 278.....	301.2 46.4	T. P. 301.....	46 18 23.00 70 12 25.75	193 15 353 00	T. P. 300..... T. P. 302.....	132.7 90.4
T. P. 278.....	46 19 30.54 70 12 25.23	156 33 321 08	T. P. 277..... T. P. 279.....	46.4 43.6	T. P. 302.....	46 18 20.09 70 12 25.23	173 00 334 15	T. P. 301..... T. P. 303.....	90.4 72.4
T. P. 279.....	46 19 29.44 70 12 23.96	141 08 355 31	T. P. 278..... T. P. 280.....	43.6 94.4	T. P. 303.....	46 18 17.98 70 12 23.76	154 15 350 57	T. P. 302..... T. P. 304.....	72.4 128.1
T. P. 280.....	46 19 26.39 70 12 23.61	175 31 26 17	T. P. 279..... T. P. 281.....	94.4 213.3	T. P. 304.....	46 18 13.88 70 12 22.82	170 57 333 32	T. P. 303..... T. P. 305.....	128.1 67.5
T. P. 281.....	46 19 20.20 70 12 28.02	206 17 350 43	T. P. 280..... T. P. 282.....	213.3 60.9	T. P. 305.....	46 18 11.92 70 12 21.41	153 32 358 02	T. P. 304..... T. P. 306.....	67.5 43.2
T. P. 282.....	46 19 18.25 70 12 27.57	170 43 323 30 91 55 264 04	T. P. 281..... T. P. 283..... Ref. Mon. C-44..... Ref. Mon. S-45.....	60.9 45.7 194.7 97.7	T. P. 306.....	46 18 10.53 70 12 21.34	178 02 21 39	T. P. 305..... T. P. 307.....	43.2 57.1
Ref. Mon. C-44.....	46 19 18.46 70 12 36.66	269 17 271 54	Ref. Mon. S-45..... T. P. 282.....	291.9 194.7	T. P. 307.....	46 18 08.81 70 12 22.33	201 39 41 40	T. P. 306..... T. P. 308.....	57.1 121.0
Ref. Mon. S-45.....	46 19 18.58 70 12 23.02	84 04 89 18	T. P. 282..... Ref. Mon. C-44.....	97.7 291.9	T. P. 308.....	46 18 05.88 70 12 26.09	221 40 11 41	T. P. 307..... T. P. 309.....	121.0 38.2
T. P. 283.....	46 19 17.06 70 12 26.29	143 30 4 51	T. P. 282..... T. P. 284.....	45.7 109.0	T. P. 309.....	46 18 04.67 70 12 26.45	191 41 334 24	T. P. 308..... T. P. 310.....	38.2 39.7
T. P. 284.....	46 19 13.55 70 12 26.72	184 51 30 59	T. P. 283..... T. P. 285.....	109.0 61.2	T. P. 310.....	46 18 03.51 70 12 25.65	154 24 298 20	T. P. 309..... T. P. 311.....	39.7 55.6
T. P. 285.....	46 19 11.85 70 12 28.20	210 59 8 33	T. P. 284..... T. P. 286.....	61.2 34.0	T. P. 311.....	46 18 02.66 70 12 23.36	118 20 320 58	T. P. 310..... T. P. 312.....	55.6 29.5
T. P. 286.....	46 19 10.76 70 12 28.44	188 33 335 28	T. P. 285..... T. P. 287.....	34.0 113.9	T. P. 312.....	46 18 01.91 70 12 22.49	140 58 354 00	T. P. 311..... T. P. 313.....	29.5 27.6
T. P. 287.....	46 19 07.40 70 12 26.22	155 28 327 12	T. P. 286..... T. P. 288.....	113.9 151.0	T. P. 313.....	46 18 01.02 70 12 22.36	174 00 22 47	T. P. 312..... T. P. 314.....	27.6 55.0

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 314-----	46 17 59.38 70 12 23.35	202 47 49 49 114 35 327 12	T. P. 313----- T. P. 315----- Ref. Mon. C-52--- Ref. Mon. S-53---	55.0 91.6 202.8 67.6	T. P. 342-----	46 17 35.84 70 13 16.78	238 20 89 43 113 32 293 12	T. P. 341----- T. P. 343----- Ref. Mon. C-56--- Ref. Mon. S-56---	118.4 159.3 196.3 265.8
Ref. Mon. C-52---	46 18 02.11 70 12 31.97	294 35 302 34	T. P. 314----- Ref. Mon. S-53---	202.8 262.3	Ref. Mon. C-56---	46 17 38.38 70 13 25.19	120 11 40 293 21 293 32	Ref. Mon. C-57--- Ref. Mon. S-56--- T. P. 342-----	519.7 462.1 196.3
Ref. Mon. S-53---	46 17 57.54 70 12 21.64	122 34 147 12	Ref. Mon. C-52--- T. P. 314-----	262.3 67.6	Ref. Mon. C-57---	46 17 46.84 70 13 46.18	300 11 20	Ref. Mon. C-56---	519.7
T. P. 315-----	46 17 57.47 70 12 26.62	229 49 76 25	T. P. 314----- T. P. 316-----	91.6 182.4	Ref. Mon. S-56---	46 17 32.45 70 13 05.37	113 12 113 21	T. P. 342----- Ref. Mon. C-56---	265.8 462.1
T. P. 316-----	46 17 56.08 70 12 34.91	256 25 54 55	T. P. 315----- T. P. 317-----	182.4 119.4	T. P. 343-----	46 17 35.81 70 13 24.23	269 43 47 43	T. P. 342----- T. P. 344-----	159.3 61.5
T. P. 317-----	46 17 53.86 70 12 39.47	234 55 87 55	T. P. 316----- T. P. 318-----	119.4 65.3	T. P. 344-----	46 17 34.47 70 13 26.35	227 43 74 30	T. P. 343----- T. P. 345-----	61.5 68.2
T. P. 318-----	46 17 53.78 70 12 42.52	267 55 133 04	T. P. 317----- T. P. 319-----	65.3 70.3	T. P. 345-----	46 17 33.88 70 13 29.42	254 30 97 05	T. P. 344----- T. P. 346-----	68.2 111.3
T. P. 319-----	46 17 55.33 70 12 44.92	313 04 79 46	T. P. 318----- T. P. 320-----	70.3 39.2	T. P. 346-----	46 17 34.33 70 13 34.58	277 05 73 14	T. P. 345----- T. P. 347-----	111.3 104.3
T. P. 320-----	46 17 55.11 70 12 46.72	259 46 25 18	T. P. 319----- T. P. 321-----	39.2 62.1	T. P. 347-----	46 17 33.35 70 13 39.25	253 14 45 14	T. P. 346----- T. P. 348-----	104.3 51.4
T. P. 321-----	46 17 53.29 70 12 47.96	205 18 125 50	T. P. 320----- T. P. 322----- Ref. Mon. C-53---	62.1 61.1 119.4	T. P. 348-----	46 17 32.18 70 13 40.95	225 14 66 24	T. P. 347----- T. P. 349-----	51.4 25.8
Ref. Mon. C-53---	46 17 55.55 70 12 52.48	245 14 305 50	Ref. Mon. C-52--- T. P. 321-----	483.4 119.4	T. P. 349-----	46 17 31.84 70 13 42.06	246 24 107 06	T. P. 348----- T. P. 350-----	25.8 26.3
T. P. 322-----	46 17 52.29 70 12 50.42	239 29 40 14	T. P. 321----- T. P. 323-----	61.1 82.5	T. P. 350-----	46 17 32.10 70 13 43.23	287 06 135 03	T. P. 349----- T. P. 351-----	26.3 39.6
T. P. 323-----	46 17 50.25 70 12 52.91	220 14 16 02	T. P. 322----- T. P. 324-----	82.5 47.3	T. P. 351-----	46 17 33.00 70 13 44.54	315 03 73 12	T. P. 350----- T. P. 352-----	39.6 20.5
T. P. 324-----	46 17 48.78 70 12 53.52	196 02 291 27	T. P. 323----- T. P. 325-----	47.3 47.2	T. P. 352-----	46 17 32.81 70 13 45.46	253 12 40 51	T. P. 351----- T. P. 353-----	20.5 26.1
T. P. 325-----	46 17 48.22 70 12 51.46	111 27 333 10	T. P. 324----- T. P. 326-----	47.2 28.7	T. P. 353-----	46 17 32.17 70 13 46.25	220 51 351 04	T. P. 352----- T. P. 354-----	26.1 44.5
T. P. 326-----	46 17 47.39 70 12 50.86	153 10 56 19	T. P. 325----- T. P. 327-----	28.7 91.4	T. P. 354-----	46 17 30.75 70 13 45.93	171 04 23 33	T. P. 353----- T. P. 355-----	44.5 23.4
T. P. 327-----	46 17 45.75 70 12 54.41	236 19 351 29	T. P. 326----- T. P. 328-----	91.4 61.6	T. P. 355-----	46 17 30.05 70 13 46.37	203 33 73 25	T. P. 354----- T. P. 356-----	23.4 82.6
T. P. 328-----	46 17 43.77 70 12 53.99	171 29 96 23	T. P. 327----- T. P. 329-----	61.6 32.3	T. P. 356-----	46 17 29.29 70 13 50.07	253 25 84 35	T. P. 355----- T. P. 357-----	82.6 70.1
T. P. 329-----	46 17 43.89 70 12 55.49	276 23 79 32	T. P. 328----- T. P. 330-----	32.3 31.2	T. P. 357-----	46 17 29.08 70 13 53.33	264 35 62 08	T. P. 356----- T. P. 358-----	70.1 66.2
T. P. 330-----	46 17 43.71 70 12 56.92	259 32 350 10	T. P. 329----- T. P. 331-----	31.2 40.7	T. P. 358-----	46 17 28.07 70 13 56.06	242 08 0 45	T. P. 357----- T. P. 359-----	66.2 205.9
T. P. 331-----	46 17 42.41 70 12 56.60	170 10 21 14	T. P. 330----- T. P. 332-----	40.7 28.9	T. P. 359-----	46 17 21.40 70 13 56.19	180 45 17 00	T. P. 358----- T. P. 360-----	205.9 44.3
T. P. 332-----	46 17 41.53 70 12 57.09	201 14 102 59	T. P. 331----- T. P. 333-----	28.9 42.5	T. P. 360-----	46 17 20.03 70 13 56.79	197 00 349 36	T. P. 359----- T. P. 361-----	44.3 74.7
T. P. 333-----	46 17 41.84 70 12 59.02	282 59 152 00	T. P. 332----- T. P. 334-----	42.5 71.8	T. P. 361-----	46 17 17.65 70 13 56.16	169 36 12 56	T. P. 360----- T. P. 362-----	74.7 64.1
T. P. 334-----	46 17 43.90 70 13 00.60	332 00 92 18	T. P. 333----- T. P. 335-----	71.8 51.9	T. P. 362-----	46 17 15.63 70 13 56.84	192 56 2 42	T. P. 361----- T. P. 363-----	64.1 86.9
T. P. 335-----	46 17 43.96 70 13 03.02	272 18 56 41	T. P. 334----- T. P. 336-----	51.9 42.4	T. P. 363-----	46 17 12.82 70 13 57.03	182 42 20 33	T. P. 362----- T. P. 364-----	86.9 138.6
T. P. 336-----	46 17 43.21 70 13 04.67	236 41 322 57	T. P. 335----- T. P. 337-----	42.4 76.5	T. P. 364-----	46 17 08.62 70 13 59.30	200 33 359 55 111 24 311 59	T. P. 363----- T. P. 365----- Ref. Mon. C-58--- Ref. Mon. S-58---	138.6 102.0 128.4 64.6
T. P. 337-----	46 17 41.23 70 13 02.52	142 57 337 25	T. P. 336----- T. P. 338-----	76.5 29.5	Ref. Mon. C-58---	46 17 10.13 70 14 04.88	291 24 298 15	T. P. 364----- Ref. Mon. S-58---	128.4 190.2
T. P. 338-----	46 17 40.35 70 13 01.99	157 25 48 30	T. P. 337----- T. P. 339-----	29.5 35.8	Ref. Mon. S-58---	46 17 07.22 70 13 57.06	118 15 131 59	Ref. Mon. C-58--- T. P. 364-----	190.2 64.6
T. P. 339-----	46 17 39.58 70 13 06.45	228 30 87 32	T. P. 338----- T. P. 340-----	35.8 68.7	T. P. 365-----	46 17 05.31 70 13 59.29	179 55 36 12	T. P. 364----- T. P. 366-----	102.0 64.5
T. P. 340-----	46 17 37.85 70 13 12.08	247 13 58 20	T. P. 339----- T. P. 341-----	68.7 130.6	T. P. 366-----	46 17 03.63 70 14 01.07	216 12 49 23	T. P. 365----- T. P. 367-----	64.5 133.3
T. P. 341-----			T. P. 340----- T. P. 342-----	130.6 118.4					



BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 367.....	46 17 00.82 70 14 05.80	229 23 20 45	T. P. 366..... T. P. 368.....	133.3 94.2	Ref. Mon. C-60.....	46 16 16.42 70 14 56.21	298 19 306 34	Ref. Mon. S-60..... T. P. 394.....	367.4 242.6
T. P. 368.....	46 16 57.96 70 14 07.36	200 45 29 57	T. P. 367..... T. P. 369.....	94.2 76.3	Ref. Mon. S-60.....	46 16 10.78 70 14 41.10	103 02 118 19	T. P. 394..... Ref. Mon. C-60.....	132.0 367.4
T. P. 369.....	46 16 55.82 70 14 09.14	209 57 13 23	T. P. 368..... T. P. 370.....	76.3 68.6	T. P. 395.....	46 16 07.89 70 14 49.99	207 24 44 21	T. P. 394..... T. P. 396.....	134.0 153.0
T. P. 370.....	46 16 53.66 70 14 09.88	193 23 54 31	T. P. 369..... T. P. 371.....	68.6 127.8	T. P. 396.....	46 16 04.35 70 14 54.98	224 21 33 39	T. P. 395..... T. P. 397.....	153.0 92.3
T. P. 371.....	46 16 51.26 70 14 14.74	234 31 88 17	T. P. 370..... T. P. 372.....	127.8 68.2	T. P. 397.....	46 16 01.86 70 14 57.37	213 39 356 40	T. P. 396..... T. P. 398.....	92.3 72.8
T. P. 372.....	46 16 51.19 70 14 17.93	268 17 47 30	T. P. 371..... T. P. 373.....	68.2 98.5	T. P. 398.....	46 15 59.50 70 14 57.18	176 40 337 11	T. P. 397..... T. P. 399.....	72.8 57.6
T. P. 373.....	46 16 49.04 70 14 21.32	227 30 39 24	T. P. 372..... T. P. 374.....	98.5 149.2	T. P. 399.....	46 15 57.78 70 14 56.13	157 11 8 37	T. P. 398..... T. P. 400.....	57.6 86.8
T. P. 374.....	46 16 45.30 70 14 25.74	219 24 358 27	T. P. 373..... T. P. 375.....	149.2 155.5	T. P. 400.....	46 15 55.00 70 14 56.74	188 37 47 46	T. P. 399..... T. P. 401.....	86.8 107.7
T. P. 375.....	46 16 40.27 70 14 25.55	178 27 29 40	T. P. 374..... T. P. 376.....	155.5 56.8	T. P. 401.....	46 15 52.66 70 15 00.46	227 46 26 58	T. P. 400..... T. P. 402.....	107.7 24.7
T. P. 376.....	46 16 38.67 70 14 26.86	209 40 357 17	T. P. 375..... T. P. 377.....	56.8 36.6	T. P. 402.....	46 15 51.94 70 15 00.99	206 58 308 24	T. P. 401..... T. P. 403.....	24.7 45.2
T. P. 377.....	46 16 37.49 70 14 26.78	177 17 319 15	T. P. 376..... T. P. 378.....	36.6 79.0	T. P. 403.....	46 15 51.04 70 14 59.33	128 24 10 50	T. P. 402..... T. P. 404.....	45.2 22.3
T. P. 378.....	46 16 35.55 70 14 24.37	139 15 356 35	T. P. 377..... T. P. 379.....	79.0 76.1	T. P. 404.....	46 15 50.33 70 14 59.53	190 50 83 28	T. P. 403..... T. P. 405.....	22.3 35.0
T. P. 379.....	46 16 33.09 70 14 24.16	176 35 29 56 115 41 307 36	T. P. 378..... T. P. 380..... Ref. Mon. C-59..... Ref. Mon. S-59.....	76.1 42.0 361.5 95.6	T. P. 405.....	46 15 50.20 70 15 01.16	263 28 52 14	T. P. 404..... T. P. 406.....	35.0 35.7
Ref. Mon. C-59.....	46 16 38.16 70 14 39.38	295 40 298 09	T. P. 379..... Ref. Mon. S-59.....	361.5 455.5	T. P. 406.....	46 15 49.49 70 15 02.47	232 14 21 36	T. P. 405..... T. P. 407.....	67.9 67.9
Ref. Mon. S-59.....	46 16 31.20 70 14 20.62	118 10 127 36	Ref. Mon. C-59..... T. P. 379.....	455.5 95.6	T. P. 407.....	46 15 47.45 70 15 03.64	201 36 11 40	T. P. 406..... T. P. 408.....	36.2 36.2
T. P. 380.....	46 16 31.91 70 14 25.14	209 56 52 20	T. P. 379..... T. P. 381.....	42.0 95.8	T. P. 408.....	46 15 46.30 70 15 03.98	191 40 334 01	T. P. 407..... T. P. 409.....	30.1 30.1
T. P. 381.....	46 16 30.01 70 14 28.68	232 20 11 21	T. P. 380..... T. P. 382.....	95.8 84.8	T. P. 409.....	46 15 45.42 70 15 03.37	154 01 259 23	T. P. 408..... T. P. 410.....	45.1 45.1
T. P. 382.....	46 16 27.32 70 14 29.46	191 21 340 40	T. P. 381..... T. P. 383.....	84.8 85.9	T. P. 410.....	46 15 45.69 70 15 01.30	79 23 333 58	T. P. 409..... T. P. 411.....	23.0 23.0
T. P. 383.....	46 16 24.70 70 14 28.13	160 40 10 39	T. P. 382..... T. P. 384.....	85.9 53.6	T. P. 411.....	46 15 45.02 70 15 00.82	153 58 51 58	T. P. 410..... T. P. 412.....	23.0 62.6
T. P. 384.....	46 16 22.99 70 14 28.59	190 39 51 29	T. P. 383..... T. P. 385.....	53.6 48.1	T. P. 412.....	46 15 43.77 70 15 03.12	231 58 36 56	T. P. 411..... T. P. 413.....	62.6 18.6
T. P. 385.....	46 16 22.02 70 14 30.35	231 29 102 18	T. P. 384..... T. P. 386.....	48.1 37.4	T. P. 413.....	46 15 43.29 70 15 03.65	216 56 320 34	T. P. 412..... T. P. 414.....	18.6 35.4
T. P. 386.....	46 16 22.28 70 14 32.06	282 18 149 57	T. P. 385..... T. P. 387.....	37.4 81.4	T. P. 414.....	46 15 42.40 70 15 02.60	140 34 356 22	T. P. 413..... T. P. 415.....	35.4 27.5
T. P. 387.....	46 16 24.56 70 14 33.96	329 57 104 38	T. P. 386..... T. P. 388.....	81.4 27.2	T. P. 415.....	46 15 41.51 70 15 02.52	176 22 51 40	T. P. 414..... T. P. 416.....	27.5 51.6
T. P. 388.....	46 16 24.78 70 14 35.19	284 38 57 16	T. P. 387..... T. P. 389.....	27.2 78.1	T. P. 416.....	46 15 40.48 70 15 04.41	231 40 358 13	T. P. 415..... T. P. 417.....	51.6 43.2
T. P. 389.....	46 16 23.41 70 14 38.26	237 16 12 21	T. P. 388..... T. P. 390.....	78.1 46.6	T. P. 417.....	46 15 39.08 70 15 04.34	178 13 46 58	T. P. 416..... T. P. 418.....	43.2 24.2
T. P. 390.....	46 16 21.94 70 14 38.72	192 21 331 17	T. P. 389..... T. P. 391.....	46.6 71.6	T. P. 418.....	46 15 38.54 70 15 05.17	226 58 103 24	T. P. 417..... T. P. 419.....	24.2 39.2
T. P. 391.....	46 16 19.90 70 14 37.12	151 17 1 19	T. P. 390..... T. P. 392.....	71.6 31.4	T. P. 419.....	46 15 38.84 70 15 06.95	283 24 48 22 114 08 273 28	T. P. 418..... T. P. 420..... Ref. Mon. C-61..... Ref. Mon. S-61.....	39.2 121.7 347.1 68.2
T. P. 392.....	46 16 18.89 70 14 37.15	181 19 44 04	T. P. 391..... T. P. 393.....	31.4 218.8	Ref. Mon. C-61.....	46 15 43.43 70 15 21.74	294 08 303 12	T. P. 419..... Ref. Mon. S-61.....	347.1 383.5
T. P. 393.....	46 16 13.80 70 14 44.26	224 04 43 58	T. P. 392..... T. P. 394.....	218.8 88.0	Ref. Mon. S-61.....	46 15 36.63 70 15 06.76	93 28 123 12	T. P. 419..... Ref. Mon. C-61.....	68.2 383.5
T. P. 394.....	46 16 11.74 70 14 47.11	223 58 27 24 126 34 283 02	T. P. 393..... T. P. 395..... Ref. Mon. C-60..... Ref. Mon. S-60.....	88.0 134.0 242.6 132.0	T. P. 420.....	46 15 36.22 70 15 11.20	228 22 13 04	T. P. 419..... T. P. 421.....	121.7 70.6
					T. P. 421.....	46 15 33.99 70 15 11.94	193 04 26 00	T. P. 420..... T. P. 422.....	70.6 63.6

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 422.....	46 15 32.14 70 15 13.24	206 00 347 34	T. P. 421..... T. P. 423.....	63.6 77.6	T. P. 444.....	46 14 46.42 70 15 21.60	217 45 3 03	T. P. 443..... T. P. 445.....	32.0 23.6
T. P. 423.....	46 15 29.69 70 15 12.46	167 34 19 12	T. P. 422..... T. P. 424.....	77.6 157.5	T. P. 445.....	46 14 45.66 70 15 21.65	183 03 258 22	T. P. 444..... T. P. 446.....	23.6 51.6
T. P. 424.....	46 15 24.87 70 15 14.88	199 12 352 05	T. P. 423..... T. P. 425.....	157.5 76.1	T. P. 446.....	46 14 45.99 70 15 19.30	78 22 282 40	T. P. 445..... T. P. 447.....	51.6 39.5
T. P. 425.....	46 15 22.43 70 15 14.39	172 05 335 28	T. P. 424..... T. P. 426.....	76.1 68.0	T. P. 447.....	46 14 45.71 70 15 17.50	102 40 328 41	T. P. 446..... T. P. 448.....	39.5 29.6
T. P. 426.....	46 15 20.43 70 15 13.08	155 28 1 32 93 28 308 25	T. P. 425..... T. P. 427..... Ref. Mon. C-62 Ref. Mon. S-62	68.0 45.2 286.4 54.6	T. P. 448.....	46 14 44.89 70 15 16.78	148 41 25 16	T. P. 447..... T. P. 449.....	29.6 32.3
Ref. Mon. C-62	46 15 20.99 70 15 26.42	273 28 278 52	T. P. 426..... Ref. Mon. S-62	286.4 332.6	T. P. 449.....	46 14 43.95 70 15 17.42	205 16 68 18	T. P. 448..... T. P. 450.....	32.3 63.5
Ref. Mon. S-62	46 15 19.33 70 15 11.08	98 52 128 25	Ref. Mon. C-62 T. P. 426.....	332.6 54.6	T. P. 450.....	46 14 43.19 70 15 20.18	248 18 56 52	T. P. 449..... T. P. 451.....	63.5 52.5
T. P. 427.....	46 15 18.96 70 15 13.13	181 32 25 59	T. P. 426..... T. P. 428.....	45.2 49.1	T. P. 451.....	46 14 42.26 70 15 22.23	236 52 27 25	T. P. 450..... T. P. 452.....	52.5 83.5
T. P. 428.....	46 15 17.53 70 15 14.14	205 59 71 34	T. P. 427..... T. P. 429.....	49.1 84.0	T. P. 452.....	46 14 39.86 70 15 24.03	207 25 359 05	T. P. 451..... T. P. 453.....	83.5 114.0
T. P. 429.....	46 15 16.67 70 15 17.86	251 34 35 27	T. P. 428..... T. P. 430.....	84.0 43.1	T. P. 453.....	46 14 36.16 70 15 23.94	179 05 33 15	T. P. 452..... T. P. 454.....	114.0 102.0
T. P. 430.....	46 15 15.54 70 15 19.02	215 27 349 29	T. P. 429..... T. P. 431.....	43.1 46.6	T. P. 454.....	46 14 33.40 70 15 26.55	213 15 22 04	T. P. 453..... T. P. 455.....	102.0 83.3
T. P. 431.....	46 15 14.05 70 15 18.62	169 29 320 27	T. P. 430..... T. P. 432.....	46.6 130.4	T. P. 455.....	46 14 30.90 70 15 28.01	202 04 342 29	T. P. 454..... T. P. 456.....	83.3 77.4
T. P. 432.....	46 15 10.80 70 15 14.75	140 27 291 56	T. P. 431..... T. P. 433.....	130.4 120.7	T. P. 456.....	46 14 28.51 70 15 26.93	162 29 1 11	T. P. 455..... T. P. 457.....	77.4 51.5
T. P. 433.....	46 15 09.33 70 15 09.52	111 56 329 14 93 55 295 15	T. P. 432..... T. P. 434..... Ref. Mon. C-63 Ref. Mon. S-63	120.7 80.4 410.9 72.4	T. P. 457.....	46 14 26.84 70 15 26.98	181 11 21 46	T. P. 456..... T. P. 458.....	51.5 49.8
Ref. Mon. C-63	46 15 10.24 70 15 28.66	273 55 277 04	T. P. 433..... Ref. Mon. S-63	410.9 479.1	T. P. 458.....	46 14 25.34 70 15 27.84	201 46 52 43	T. P. 457..... T. P. 459.....	49.8 101.5
Ref. Mon. S-63	46 15 08.34 70 15 06.46	97 04 115 15	Ref. Mon. C-63 T. P. 433.....	479.1 72.4	T. P. 459.....	46 14 23.35 70 15 31.61	232 43 41 38	T. P. 458..... T. P. 460.....	101.5 119.0
T. P. 434.....	46 15 07.10 70 15 07.60	149 14 10 25	T. P. 433..... T. P. 435.....	80.4 96.6	T. P. 460.....	46 14 20.47 70 15 35.30	221 38 18 26	T. P. 459..... T. P. 461.....	119.0 45.2
T. P. 435.....	46 15 04.02 70 15 08.42	190 25 354 01	T. P. 434..... T. P. 436.....	96.6 41.5	T. P. 461.....	46 14 19.08 70 15 35.96	198 26 297 34	T. P. 460..... T. P. 462.....	45.2 87.4
T. P. 436.....	46 15 02.68 70 15 08.21	174 01 333 55	T. P. 435..... T. P. 437.....	41.5 131.1	T. P. 462.....	46 14 17.77 70 15 32.35	117 34 310 39	T. P. 461..... T. P. 463.....	87.4 40.7
T. P. 437.....	46 14 58.87 70 15 05.52	153 55 356 58	T. P. 436..... T. P. 438.....	131.1 53.0	T. P. 463.....	46 14 16.91 70 15 30.90	130 39 5 44 90 11 347 08	T. P. 462..... T. P. 464..... Ref. Mon. C-66 Ref. Mon. S-65	40.7 266.6 383.7 121.0
T. P. 438.....	46 14 57.15 70 15 05.39	176 58 33 47	T. P. 437..... T. P. 439.....	53.0 57.1	Ref. Mon. C-66	46 14 16.95 70 15 48.82	270 11 286 11	T. P. 463..... Ref. Mon. S-65	383.7 427.6
T. P. 439.....	46 14 55.62 70 15 06.87	213 47 55 11	T. P. 438..... T. P. 440.....	57.1 108.3	Ref. Mon. S-65	46 14 13.09 70 15 29.65	106 11 167 08	Ref. Mon. C-66 T. P. 463.....	427.6 121.0
T. P. 440.....	46 14 53.61 70 15 11.03	235 11 48 26	T. P. 439..... T. P. 441.....	108.3 112.8	T. P. 464.....	46 14 08.32 70 15 32.15	185 44 32 52	T. P. 463..... T. P. 465.....	266.6 142.1
T. P. 441.....	46 14 51.19 70 15 14.97	228 26 38 07 107 13 287 11	T. P. 440..... T. P. 442..... Ref. Mon. C-64 Ref. Mon. S-64	112.8 117.5 379.1 290.6	T. P. 465.....	46 14 04.46 70 15 35.75	212 52 16 27	T. P. 464..... T. P. 466.....	142.1 100.5
Ref. Mon. C-64	46 14 54.82 70 15 31.87	17 15 287 11 40 287 13	Ref. Mon. C-65 Ref. Mon. S-64 T. P. 441.....	258.8 669.8 379.1	T. P. 466.....	46 14 01.34 70 15 37.08	196 27 1 52	T. P. 465..... T. P. 467.....	100.5 134.7
Ref. Mon. S-64	46 14 48.41 70 15 02.01	107 11 107 12 00	T. P. 441..... Ref. Mon. C-64	290.6 669.8	T. P. 467.....	46 13 56.98 70 15 37.28	181 52 13 55	T. P. 466..... T. P. 468.....	134.7 52.4
Ref. Mon. C-65	46 14 46.82 70 15 35.46	197 14	Ref. Mon. C-64	258.8	T. P. 468.....	46 13 55.33 70 15 37.87	193 55 44 58	T. P. 467..... T. P. 469.....	52.4 75.2
T. P. 442.....	46 14 48.20 70 15 18.35	218 07 59 20	T. P. 441..... T. P. 443.....	117.5 58.0	T. P. 469.....	46 13 53.61 70 15 40.35	224 58 31 24	T. P. 468..... T. P. 470.....	75.2 47.1
T. P. 443.....	46 14 47.24 70 15 20.68	239 20 37 45	T. P. 442..... T. P. 444.....	58.0 32.0	T. P. 470.....	46 13 52.31 70 15 41.49	211 24 277 21	T. P. 469..... T. P. 471.....	47.1 41.9
					T. P. 471.....	46 13 52.13 70 15 39.55	97 21 294 25	T. P. 470..... T. P. 472.....	41.9 26.0
					T. P. 472.....	46 13 51.78 70 15 38.45	114 25 15 48	T. P. 471..... T. P. 473.....	26.0 83.1



BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 473.....	46 13 49.19 70 15 39.50	195 48 39 53	T. P. 472..... T. P. 474.....	83.1 71.1	T. P. 502.....	46 13 07.96 70 16 09.07	77 09 321 40	T. P. 501..... T. P. 503.....	38.8 26.6
T. P. 474.....	46 13 47.43 70 15 41.63	219 53 54 44	T. P. 473..... T. P. 475.....	71.1 114.4	T. P. 503.....	46 13 07.29 70 16 08.30	141 40 21 27	T. P. 502..... T. P. 504.....	26.6 73.0
T. P. 475.....	46 13 45.29 70 15 45.99	234 44 83 00	T. P. 474..... T. P. 476.....	114.4 107.1	T. P. 504.....	46 13 05.09 70 16 09.55	201 27 55 21	T. P. 503..... T. P. 505.....	73.0 43.6
T. P. 476.....	46 13 44.86 70 15 50.95	263 00 40 00	T. P. 475..... T. P. 477.....	107.1 37.4	T. P. 505.....	46 13 04.29 70 16 11.22	235 21 142 44	T. P. 504..... T. P. 506.....	43.6 36.8
T. P. 477.....	46 13 43.94 70 15 52.07	220 00 18 07	T. P. 476..... T. P. 478.....	37.4 71.1	T. P. 506.....	46 13 05.23 70 16 12.26	322 44 34 07	T. P. 505..... T. P. 507.....	36.8 40.8
T. P. 478.....	46 13 41.75 70 15 53.10	198 07 328 30	T. P. 477..... T. P. 479.....	71.1 44.7	T. P. 507.....	46 13 04.14 70 16 13.33	214 07 0 21	T. P. 506..... T. P. 508.....	40.8 51.9
T. P. 479.....	46 13 40.52 70 15 52.01	148 30 357 32	T. P. 478..... T. P. 480.....	44.7 20.9	T. P. 508.....	46 13 02.46 70 16 13.34	180 21 63 20	T. P. 507..... T. P. 509.....	51.9 80.5
T. P. 480.....	46 13 39.84 70 15 51.97	177 32 44 37	T. P. 479..... T. P. 481.....	20.9 52.0	T. P. 509.....	46 13 01.29 70 16 16.70	243 20 131 38	T. P. 508..... T. P. 510.....	80.5 43.2
T. P. 481.....	46 13 38.64 70 15 53.67	224 37 39 06	T. P. 480..... T. P. 482.....	52.0 149.1	T. P. 510.....	46 13 02.22 70 16 18.20	311 38 52 02	T. P. 509..... T. P. 511.....	43.2 27.1
T. P. 482.....	46 13 34.89 70 15 58.06	219 06 9 16	T. P. 481..... T. P. 483.....	149.1 61.7	T. P. 511.....	46 13 01.68 70 16 19.20	232 02 350 50	T. P. 510..... T. P. 512.....	27.1 37.2
T. P. 483.....	46 13 32.92 70 15 58.52	189 16 64 58 126 04 301 01	T. P. 482..... T. P. 484..... Ref. Mon. C-67..... Ref. Mon. S-66.....	61.7 128.5 467.0 200.0	T. P. 512.....	46 13 00.49 70 16 18.92	170 50 29 53	T. P. 511..... T. P. 513.....	37.2 28.4
Ref. Mon. C-67.....	46 13 41.83 70 16 16.14	304 32 40 306 04	Ref. Mon. S-66.....	666.5	T. P. 513.....	46 12 59.69 70 16 19.58	209 53 110 20	T. P. 512..... T. P. 514.....	28.4 43.0
Ref. Mon. S-66.....	46 13 29.59 70 15 50.52	121 01 124 33 00	T. P. 483..... Ref. Mon. C-67.....	200.0 666.5	T. P. 514.....	46 13 00.18 70 16 21.47	290 20 159 16	T. P. 513..... T. P. 515.....	43.0 51.8
T. P. 484.....	46 13 31.16 70 16 03.96	244 58 31 18	T. P. 483..... T. P. 485.....	128.5 26.6	T. P. 515.....	46 13 01.75 70 16 22.32	339 16 102 01	T. P. 514..... T. P. 516.....	51.8 23.7
T. P. 485.....	46 13 30.43 70 16 04.60	211 18 318 21	T. P. 484..... T. P. 486.....	26.6 176.5	T. P. 516.....	46 13 01.91 70 16 23.40	282 01 43 28	T. P. 515..... T. P. 517.....	23.7 40.7
T. P. 486.....	46 13 26.16 70 15 59.13	138 21 350 37	T. P. 485..... T. P. 487.....	176.5 24.5	T. P. 517.....	46 13 00.95 70 16 24.71	223 28 89 43	T. P. 516..... T. P. 518.....	40.7 56.0
T. P. 487.....	46 13 25.37 70 15 58.94	170 37 19 16	T. P. 486..... T. P. 488.....	24.5 101.3	T. P. 518.....	46 13 00.94 70 16 27.32	269 43 1 40	T. P. 517..... T. P. 519.....	56.0 27.4
T. P. 488.....	46 13 22.28 70 16 00.50	199 16 32 40	T. P. 487..... T. P. 489.....	101.3 150.6	T. P. 519.....	46 13 00.05 70 16 27.36	181 40 290 38	T. P. 518..... T. P. 520.....	27.4 40.2
T. P. 489.....	46 13 18.17 70 16 04.30	212 40 39 02	T. P. 488..... T. P. 490.....	150.6 65.7	T. P. 520.....	46 12 59.59 70 16 25.61	110 38 329 23	T. P. 519..... T. P. 521.....	40.2 23.8
T. P. 490.....	46 13 16.52 70 16 06.23	219 02 18 14	T. P. 489..... T. P. 491.....	65.7 39.6	T. P. 521.....	46 12 58.93 70 16 25.04	149 23 17 26	T. P. 520..... T. P. 522.....	23.8 42.2
T. P. 491.....	46 13 15.30 70 16 06.80	198 14 345 22	T. P. 490..... T. P. 492.....	39.6 94.4	T. P. 522.....	46 12 57.63 70 16 25.63	197 26 52 16	T. P. 521..... T. P. 523.....	42.2 84.7
T. P. 492.....	46 13 12.34 70 16 05.69	165 22 349 20	T. P. 491..... T. P. 493.....	94.4 66.0	T. P. 523.....	46 12 55.95 70 16 28.76	232 16 22 19	T. P. 522..... T. P. 524.....	84.7 76.0
T. P. 493.....	46 13 10.24 70 16 05.12	169 20 33 47	T. P. 492..... T. P. 494.....	66.0 33.1	T. P. 524.....	46 12 53.68 70 16 30.10	202 19 351 57	T. P. 523..... T. P. 525.....	76.0 32.2
T. P. 494.....	46 13 09.35 70 16 05.98	213 47 117 27	T. P. 493..... T. P. 495.....	33.1 69.2	T. P. 525.....	46 12 52.64 70 16 29.89	171 57 284 11	T. P. 524..... T. P. 526.....	32.2 30.1
T. P. 495.....	46 13 10.38 70 16 08.84	297 27 142 22	T. P. 494..... T. P. 496.....	69.2 41.0	T. P. 526.....	46 12 52.41 70 16 28.53	104 11 316 33	T. P. 525..... T. P. 527.....	30.1 71.8
T. P. 496.....	46 13 11.43 70 16 10.01	322 22 60 26	T. P. 495..... T. P. 497.....	41.0 17.8	T. P. 527.....	46 12 50.72 70 16 26.23	136 33 277 56	T. P. 526..... T. P. 528.....	71.8 66.5
T. P. 497.....	46 13 11.15 70 16 10.74	240 26 357 07	T. P. 496..... T. P. 498.....	17.8 37.2	T. P. 528.....	46 12 50.42 70 16 23.16	97 56 301 52	T. P. 527..... T. P. 529.....	66.5 42.9
T. P. 498.....	46 13 09.95 70 16 10.65	177 07 18 49	T. P. 497..... T. P. 499.....	37.2 85.4	T. P. 529.....	46 12 49.69 70 16 21.45	121 52 330 58	T. P. 528..... T. P. 530.....	42.9 73.5
T. P. 499.....	46 13 07.33 70 16 11.93	198 49 339 28	T. P. 498..... T. P. 500.....	85.4 16.6	T. P. 530.....	46 12 47.61 70 16 19.79	150 58 56 03	T. P. 529..... T. P. 531.....	73.5 34.2
T. P. 500.....	46 13 06.82 70 16 11.66	159 28 213 44	T. P. 499..... T. P. 501.....	16.6 32.0	T. P. 531.....	46 12 46.99 70 16 21.12	236 03 5 26	T. P. 530..... T. P. 532.....	34.2 42.6
T. P. 501.....	46 13 07.69 70 16 10.84	33 44 257 09	T. P. 500..... T. P. 502.....	32.0 38.8	T. P. 532.....	46 12 45.62 70 16 21.30	185 26 337 02	T. P. 531..... T. P. 533.....	42.6 66.4
					T. P. 533.....	46 12 43.63 70 16 20.09	157 02 304 31	T. P. 532..... T. P. 534.....	66.4 39.4

BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 534.....	46 12 42.91 70 16 18.58	124 31 323 32	T. P. 533..... T. P. 535.....	39.4 40.2	T. P. 562.....	46 12 13.17 70 16 44.66	268 35 32 22	T. P. 561..... T. P. 563.....	50.2 99.6
T. P. 535.....	46 12 41.86 70 16 17.46	143 32 14 42	T. P. 534..... T. P. 536.....	40.2 48.8	T. P. 563.....	46 12 10.45 70 16 47.15	212 22 356 22	T. P. 562..... T. P. 564.....	99.6 32.3
T. P. 536.....	46 12 40.33 70 16 18.04	194 42 0 31	T. P. 535..... T. P. 537.....	48.8 30.8	T. P. 564.....	46 12 09.40 70 16 47.05	176 22 22 47	T. P. 563..... T. P. 565.....	32.3 89.9
T. P. 537.....	46 12 39.34 70 16 18.06	180 31 78 43	T. P. 536..... T. P. 538.....	30.8 25.9	T. P. 565.....	46 12 06.72 70 16 48.68	202 47 41 27	T. P. 564..... T. P. 566.....	89.9 38.9
T. P. 538.....	46 12 39.17 70 16 19.24	258 43 161 07	T. P. 537..... T. P. 539.....	25.9 35.6	T. P. 566.....	46 12 05.77 70 16 49.88	221 27 72 39	T. P. 565..... T. P. 567.....	38.9 100.3
T. P. 539.....	46 12 40.26 70 16 19.78	341 07 95 52	T. P. 538..... T. P. 540.....	35.6 17.3	T. P. 567.....	46 12 04.81 70 16 54.34	252 39 57 50	T. P. 566..... T. P. 568.....	100.3 25.4
T. P. 540.....	46 12 40.32 70 16 20.58	275 52 58 33	T. P. 539..... T. P. 541.....	17.3 40.6	T. P. 568.....	46 12 04.37 70 16 55.34	237 50 353 42	T. P. 567..... T. P. 569.....	25.4 47.6
T. P. 541.....	46 12 39.64 70 16 22.20	238 33 6 50	T. P. 540..... T. P. 542.....	40.6 27.8	T. P. 569.....	46 12 02.84 70 16 55.10	173 42 331 42	T. P. 568..... T. P. 570.....	47.6 32.2
T. P. 542.....	46 12 38.74 70 16 22.35	186 50 312 04	T. P. 541..... T. P. 543.....	27.8 58.8	T. P. 570.....	46 12 01.92 70 16 54.39	151 42 347 03	T. P. 569..... T. P. 571.....	32.2 36.6
T. P. 543.....	46 12 37.46 70 16 20.32	132 04 341 30	T. P. 542..... T. P. 544.....	58.8 21.0	T. P. 571.....	46 12 00.76 70 16 54.01	167 03 41 31	T. P. 570..... T. P. 572.....	36.6 67.9
T. P. 544.....	46 12 36.82 70 16 20.00	161 30 34 59	T. P. 543..... T. P. 545.....	21.0 25.0	Ref. Mon. C-70.....	46 12 07.08 70 17 11.88	12 27 50 296 59 300 14 10	Ref. Mon. S-69..... T. P. 571..... Ref. Mon. S-68.....	1,324.6 429.9 510.5
T. P. 545.....	46 12 36.16 70 16 20.67	214 59 86 54	T. P. 544..... T. P. 546.....	25.0 46.5	Ref. Mon. S-68.....	46 11 58.75 70 16 51.31	120 14 20 136 58	Ref. Mon. C-70..... T. P. 571.....	510.5 84.9
T. P. 546.....	46 12 36.07 70 16 22.84	266 54 63 06	T. P. 545..... T. P. 547.....	46.5 35.4	T. P. 572.....	46 11 59.11 70 16 56.11	221 31 60 44	T. P. 571..... T. P. 573.....	67.9 86.5
T. P. 547.....	46 12 35.56 70 16 24.31	243 06 44 14 122 04 40 297 40	T. P. 546..... T. P. 548..... Ref. Mon. C-68..... Ref. Mon. S-67.....	35.4 61.2 855.2 135.1	T. P. 573.....	46 11 57.74 70 16 59.62	240 44 76 05	T. P. 572..... T. P. 574.....	86.5 77.9
Ref. Mon. C-68.....	46 12 50.26 70 16 58.12	12 28 301 28 00 302 04 10	Ref. Mon. C-69..... Ref. Mon. S-67..... T. P. 547.....	243.8 990.0 855.2	T. P. 574.....	46 11 57.14 70 17 03.15	256 05 49 54	T. P. 573..... T. P. 575.....	77.9 30.1
Ref. Mon. S-67.....	46 12 33.52 70 16 18.73	117 40 121 28 30	T. P. 547..... Ref. Mon. C-68.....	135.1 990.0	T. P. 575.....	46 11 56.51 70 17 04.23	229 54 21 48	T. P. 574..... T. P. 576.....	30.1 149.3
Ref. Mon. C-69.....	46 12 42.55 70 17 00.58	192 28	Ref. Mon. C-68.....	243.8	T. P. 576.....	46 11 52.02 70 17 06.81	201 48 78 55	T. P. 575..... T. P. 577.....	149.3 62.6
T. P. 548.....	46 12 34.14 70 16 26.31	224 14 20 30	T. P. 547..... T. P. 549.....	61.2 47.7	T. P. 577.....	46 11 51.63 70 17 09.68	258 55 24 09	T. P. 576..... T. P. 578.....	62.6 121.6
T. P. 549.....	46 12 32.69 70 16 27.09	200 30 52 13	T. P. 548..... T. P. 550.....	47.7 177.4	T. P. 578.....	46 11 48.04 70 17 12.00	204 09 356 19	T. P. 577..... T. P. 579.....	121.6 49.2
T. P. 550.....	46 12 29.17 70 16 33.63	232 13 47 07	T. P. 549..... T. P. 551.....	177.4 47.8	T. P. 579.....	46 11 46.45 70 17 11.85	176 19 25 56	T. P. 578..... T. P. 580.....	49.2 28.1
T. P. 551.....	46 12 28.11 70 16 35.26	227 07 62 20	T. P. 550..... T. P. 552.....	47.8 47.5	T. P. 580.....	46 11 45.63 70 17 12.43	205 56 340 16	T. P. 579..... T. P. 581.....	28.1 46.9
T. P. 552.....	46 12 27.40 70 16 37.22	242 20 355 01	T. P. 551..... T. P. 553.....	47.5 16.0	T. P. 581.....	46 11 44.20 70 17 11.69	160 16 10 31	T. P. 580..... T. P. 582.....	46.9 13.8
T. P. 553.....	46 12 26.88 70 16 37.16	175 01 25 04	T. P. 552..... T. P. 554.....	16.0 97.5	T. P. 582.....	46 11 43.76 70 17 11.80	190 31 76 18	T. P. 581..... T. P. 583.....	13.8 31.5
T. P. 554.....	46 12 24.02 70 16 39.09	205 04 353 51	T. P. 553..... T. P. 555.....	97.5 53.0	T. P. 583.....	46 11 43.51 70 17 13.23	256 18 42 33	T. P. 582..... T. P. 584.....	31.5 25.3
T. P. 555.....	46 12 22.32 70 16 38.82	173 51 9 54	T. P. 554..... T. P. 556.....	53.0 108.3	T. P. 584.....	46 11 42.91 70 17 14.03	222 33 79 07	T. P. 583..... T. P. 585.....	25.3 26.0
T. P. 556.....	46 12 18.86 70 16 39.69	189 54 23 43	T. P. 555..... T. P. 557.....	108.3 92.8	T. P. 585.....	46 11 42.75 70 17 15.22	259.07 107 10	T. P. 584..... T. P. 586.....	26.0 87.1
T. P. 557.....	46 12 16.11 70 16 41.43	203 43 11 46	T. P. 556..... T. P. 558.....	92.8 23.2	T. P. 586.....	46 11 43.58 70 17 19.10	287 10 60 38	T. P. 585..... T. P. 587.....	87.1 12.2
T. P. 558.....	46 12 15.38 70 16 41.65	191 46 324 24	T. P. 557..... T. P. 559.....	23.2 33.6	T. P. 587.....	46 11 43.39 70 17 19.60	240 38 23 40	T. P. 586..... T. P. 588.....	12.2 29.2
T. P. 559.....	46 12 14.49 70 16 40.74	144 24 25 46	T. P. 558..... T. P. 560.....	33.6 27.9	T. P. 588.....	46 11 42.52 70 17 20.14	203 40 353 03	T. P. 587..... T. P. 589.....	29.2 78.0
T. P. 560.....	46 12 13.68 70 16 41.31	205 46 56 28	T. P. 559..... T. P. 561.....	27.9 26.0	T. P. 589.....	46 11 40.02 70 17 19.70	173 03 335 24	T. P. 588..... T. P. 590.....	78.0 53.0
T. P. 561.....	46 12 13.21 70 16 42.32	236 28 88 35	T. P. 560..... T. P. 562.....	26.0 50.2	T. P. 590.....	46 11 38.46 70 17 18.68	155 24 53 10	T. P. 589..... T. P. 591.....	53.0 58.7



BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 591.....	46 11 37.32 70 17 20.87	233 10 124 07	T. P. 590..... T. P. 592.....	58.7 30.4	T. P. 619.....	46 11 07.01 70 17 20.00	95 16 303 27	T. P. 618..... T. P. 620.....	89.2 97.2
T. P. 592.....	46 11 37.87 70 17 22.04	304 07 60 04	T. P. 591..... T. P. 593.....	30.4 28.3	T. P. 620.....	46 11 05.28 70 17 16.22	123 27 261 44	T. P. 619..... T. P. 621.....	97.2 62.0
T. P. 593.....	46 11 37.41 70 17 23.18	240 04 15 22	T. P. 592..... T. P. 594.....	28.3 49.7	T. P. 621.....	46 11 05.57 70 17 13.36	81 44 293 24	T. P. 620..... T. P. 622.....	62.0 41.8
T. P. 594.....	46 11 35.86 70 17 23.80	195 22 310 25	T. P. 593..... T. P. 595.....	49.7 39.7	T. P. 622.....	46 11 05.03 70 17 11.57	113 24 319 15	T. P. 621..... T. P. 623.....	41.8 26.7
T. P. 595.....	46 11 35.03 70 17 22.39	130 25 6 30	T. P. 594..... T. P. 596.....	39.7 21.0	T. P. 623.....	46 11 04.37 70 17 10.75	139 15 17 35	T. P. 622..... T. P. 624.....	26.7 63.7
T. P. 596.....	46 11 34.35 70 17 22.50	186 30 97 48	T. P. 595..... T. P. 597.....	21.0 47.6	T. P. 624.....	46 11 02.41 70 17 11.65	197 35 356 13	T. P. 623..... T. P. 625.....	63.7 144.7
T. P. 597.....	46 11 34.56 70 17 24.70	277 48 57 36	T. P. 596..... T. P. 598.....	47.6 175.0	T. P. 625.....	46 10 57.73 70 17 11.21	176 13 303 22	T. P. 624..... T. P. 626.....	144.7 78.2
T. P. 598.....	46 11 31.52 70 17 31.59	237 36 44 58	T. P. 597..... T. P. 599.....	175.0 57.2	T. P. 626.....	46 10 56.33 70 17 08.16	123 22 342 52	T. P. 625..... T. P. 627.....	78.2 45.7
T. P. 599.....	46 11 30.21 70 17 33.47	224 58 71 09	T. P. 598..... T. P. 600.....	57.2 54.4	T. P. 627.....	46 10 54.92 70 17 07.53	162 52 287 17	T. P. 626..... T. P. 628.....	45.7 35.7
T. P. 600.....	46 11 29.64 70 17 35.88	251 09 332 21 24 02 298 13	T. P. 599..... T. P. 601..... Ref. Mon. 313..... Ref. Mon. 312.....	54.4 38.8 16.6 13.4	T. P. 628.....	46 10 54.58 70 17 05.94	107 17 305 55	T. P. 627..... T. P. 629.....	35.7 53.8
Ref. Mon. 312.....	46 11 29.44 70 17 35.32	64 33 118 13	Ref. Mon. 313..... T. P. 600.....	20.6 13.4	T. P. 629.....	46 10 53.56 70 17 03.91	125 55 0 01	T. P. 628..... T. P. 630.....	53.8 42.9
Ref. Mon. 313.....	46 11 29.15 70 17 36.19	204 02 244 33 297 26	T. P. 600..... Ref. Mon. 312..... Ref. Mon. S-69.....	16.6 20.6 265.4	T. P. 630.....	46 10 52.16 70 17 03.91	180 01 66 22	T. P. 629..... T. P. 631.....	42.9 36.7
Ref. Mon. S-69.....	46 11 25.19 70 17 25.21	192 27 40 117 26	Ref. Mon. C-70..... Ref. Mon. 313.....	1,324.6 265.4	T. P. 631.....	46 10 51.69 70 17 05.48	246 22 331 54	T. P. 630..... T. P. 632.....	36.7 75.0
T. P. 601.....	46 11 28.53 70 17 35.04	152 21 358 15	T. P. 600..... T. P. 602.....	38.8 37.8	T. P. 632.....	46 10 49.54 70 17 03.84	151 54 282 01	T. P. 631..... T. P. 633.....	75.0 32.5
T. P. 602.....	46 11 27.31 70 17 34.98	178 15 336 00	T. P. 601..... T. P. 603.....	37.8 27.5	T. P. 633.....	46 10 49.32 70 17 02.35	102 01 272 44	T. P. 632..... T. P. 634.....	32.5 33.2
T. P. 603.....	46 11 26.50 70 17 34.46	156 00 8 36	T. P. 602..... T. P. 604.....	27.5 40.5	T. P. 634.....	46 10 49.27 70 17 00.81	92 44 342 11	T. P. 633..... T. P. 635.....	33.2 26.3
T. P. 604.....	46 11 25.20 70 17 34.74	188 36 289 39	T. P. 603..... T. P. 605.....	40.5 42.5	T. P. 635.....	46 10 48.46 70 17 00.43	162 11 319 06	T. P. 634..... T. P. 636.....	26.3 32.8
T. P. 605.....	46 11 24.74 70 17 32.88	109 39 241 16	T. P. 604..... T. P. 606.....	42.5 44.5	T. P. 636.....	46 10 47.66 70 16 59.43	139 06 347 08	T. P. 635..... T. P. 637.....	32.8 36.6
T. P. 606.....	46 11 25.43 70 17 31.06	61 16 303 59	T. P. 605..... T. P. 607.....	44.5 17.4	T. P. 637.....	46 10 46.50 70 16 59.05	167 08 358 22	T. P. 636..... T. P. 638.....	36.6 87.4
T. P. 607.....	46 11 25.11 70 17 30.39	123 59 16 26	T. P. 606..... T. P. 608.....	17.4 58.0	T. P. 638.....	46 10 43.68 70 16 58.94	178 22 319 55	T. P. 637..... T. P. 639.....	87.4 72.7
T. P. 608.....	46 11 23.31 70 17 31.15	196 26 322 26	T. P. 607..... T. P. 609.....	58.0 92.7	T. P. 639.....	46 10 41.87 70 16 56.76	139 55 283 33	T. P. 638..... T. P. 640.....	72.7 37.1
T. P. 609.....	46 11 20.93 70 17 28.52	142 26 293 10	T. P. 608..... T. P. 610.....	92.7 46.4	T. P. 640.....	46 10 41.59 70 16 55.07	103 33 350 40	T. P. 639..... T. P. 641.....	37.1 51.2
T. P. 610.....	46 11 20.34 70 17 26.53	113 10 13 14	T. P. 609..... T. P. 611.....	46.4 42.6	T. P. 641.....	46 10 39.95 70 16 54.69	170 40 314 34	T. P. 640..... T. P. 642.....	51.2 24.1
T. P. 611.....	46 11 19.00 70 17 26.98	193 14 349 34	T. P. 610..... T. P. 612.....	42.6 68.3	T. P. 642.....	46 10 39.41 70 16 53.89	134 34 256 38	T. P. 641..... T. P. 643.....	24.1 44.4
T. P. 612.....	46 11 16.82 70 17 26.41	169 34 64 33	T. P. 611..... T. P. 613.....	68.3 52.5	T. P. 643.....	46 10 39.74 70 16 51.87	76 38 303 37	T. P. 642..... T. P. 644.....	44.4 15.3
T. P. 613.....	46 11 16.09 70 17 28.62	244 33 355 05	T. P. 612..... T. P. 614.....	52.5 78.3	T. P. 644.....	46 10 39.46 70 16 51.28	123 37 345 08	T. P. 643..... T. P. 645.....	15.3 54.2
T. P. 614.....	46 11 13.57 70 17 28.30	175 05 10 14	T. P. 613..... T. P. 615.....	78.3 106.2	T. P. 645.....	46 10 37.77 70 16 50.63	165 08 355 19	T. P. 644..... T. P. 646.....	54.2 46.0
T. P. 615.....	46 11 10.18 70 17 29.18	190 14 334 59	T. P. 614..... T. P. 616.....	106.2 50.4	T. P. 646.....	46 10 36.28 70 16 50.45	175 19 304 49	T. P. 645..... T. P. 647.....	46.0 41.8
T. P. 616.....	46 11 08.70 70 17 28.19	154 59 4 10	T. P. 615..... T. P. 617.....	50.4 57.0	T. P. 647.....	46 10 35.51 70 16 48.85	124 49 342 59	T. P. 646..... T. P. 648.....	41.8 42.0
T. P. 617.....	46 11 06.86 70 17 28.38	184 10 261 51	T. P. 616..... T. P. 618.....	57.0 91.9	T. P. 648.....	46 10 34.21 70 16 48.28	162 59 314 58 48 22 227 23	T. P. 647..... T. P. 649..... Ref. Mon. C-72..... Ref. Mon. S-70.....	42.0 33.2 292.0 133.8
T. P. 618.....	46 11 07.28 70 17 24.14	81 51 275 16	T. P. 617..... T. P. 619.....	91.9 89.2	Ref. Mon. C-72.....	46 10 27.93 70 16 58.46	137 58 40 228 03 228 22	Ref. Mon. C-71..... Ref. Mon. S-70..... T. P. 648.....	1,157.0 425.8 292.0

BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Ref. Mon. S-70.	46 10 37.14 70 16 43.69	47 23 48 04	T. P. 648. Ref. Mon. C-72.	133.8 425.8	T. P. 676.	46 10 10.01 70 16 02.65	67 56 275 18	T. P. 675. T. P. 677.	30.0 17.4
Ref. Mon. C-71.	46 10 55.76 70 17 34.57	317 58 20	Ref. Mon. C-72.	1,157.0	T. P. 677.	46 10 09.96 70 16 01.84	95 18 342 24	T. P. 676. T. P. 678.	17.4 88.0
T. P. 649.	46 10 33.45 70 16 47.19	134 58 292 34	T. P. 648. T. P. 650.	33.2 18.8	T. P. 678.	46 10 07.24 70 16 00.60	162 24 324 39	T. P. 677. T. P. 679.	88.0 59.2
T. P. 650.	46 10 33.22 70 16 46.38	112 34 322 23	T. P. 649. T. P. 651.	18.8 170.5	T. P. 679.	46 10 05.68 70 15 59.00	144 39 301 54	T. P. 678. T. P. 680.	59.2 81.7
T. P. 651.	46 10 28.84 70 16 41.53	142 23 280 08	T. P. 650. T. P. 652.	170.5 51.8	T. P. 680.	46 10 04.28 70 15 55.76	121 54 331 29	T. P. 679. T. P. 681.	81.7 28.3
T. P. 652.	46 10 28.55 70 16 39.15	100 08 243 49	T. P. 651. T. P. 653.	51.8 36.8	T. P. 681.	46 10 03.48 70 15 55.14	151 29 11 43	T. P. 680. T. P. 682.	28.3 63.0
T. P. 653.	46 10 29.07 70 16 37.61	63 49 301 32	T. P. 652. T. P. 654.	36.8 58.7	T. P. 682.	46 10 01.48 70 15 55.73	191 43 334 15	T. P. 681. T. P. 683.	63.0 33.7
T. P. 654.	46 10 28.08 70 16 35.27	121 32 271 07	T. P. 653. T. P. 655.	58.7 36.1	T. P. 683.	46 10 00.50 70 15 55.05	154 15 341 21	T. P. 682. T. P. 684.	33.7 53.6
T. P. 655.	46 10 28.06 70 16 33.59	91 07 309 30	T. P. 654. T. P. 656.	36.1 29.9	T. P. 684.	46 09 58.85 70 15 54.25	161 21 356 52	T. P. 683. T. P. 685.	53.6 43.8
T. P. 656.	46 10 27.44 70 16 32.52	129 30 345 21	T. P. 655. T. P. 657.	29.9 36.9	T. P. 685.	46 09 57.44 70 15 54.14	176 52 12 58	T. P. 684. T. P. 686.	43.8 50.2
T. P. 657.	46 10 26.29 70 16 32.08	165 21 46 19	T. P. 656. T. P. 658.	36.9 59.0	T. P. 686.	46 09 55.85 70 15 54.66	192 58 354 06	T. P. 685. T. P. 687.	50.2 84.7
T. P. 658.	46 10 24.97 70 16 34.07	226 19 5 39	T. P. 657. T. P. 659.	59.0 18.0			33 48 240 51	Ref. Mon. C-74. Ref. Mon. S-72.	69.3 196.7
T. P. 659.	46 10 24.39 70 16 34.15	185 39 309 50	T. P. 658. T. P. 660.	18.0 55.6	Ref. Mon. C-74.	46 09 53.99 70 15 56.46	213 48 233 54	T. P. 686. Ref. Mon. S-72.	69.3 260.3
T. P. 660.	46 10 23.23 70 16 32.16	129 50 300 33	T. P. 659. T. P. 661.	55.6 79.8	Ref. Mon. S-72	46 09 58.95 70 15 46.66	53 54 60 51	Ref. Mon. C-74. T. P. 686.	260.3 196.7
T. P. 661.	46 10 21.92 70 16 28.96	120 33 323 41	T. P. 660. T. P. 662.	79.8 48.0	T. P. 687.	46 09 53.12 70 15 54.26	174 06 303 49	T. P. 686. T. P. 688.	84.7 26.2
T. P. 662.	46 10 20.66 70 16 27.63	143 41 282 41	T. P. 661. T. P. 663.	48.0 47.7	T. P. 688.	46 09 52.65 70 15 53.24	123 49 275 33	T. P. 687. T. P. 689.	26.2 33.9
T. P. 663.	46 10 20.33 70 16 25.46	102 41 297 11	T. P. 662. T. P. 664.	47.7 43.4	T. P. 689.	46 09 52.54 70 15 51.67	95 33 297 34	T. P. 688. T. P. 690.	33.9 51.4
T. P. 664.	46 10 19.68 70 16 23.66	117 11 254 10	T. P. 663. T. P. 665.	43.4 70.7	T. P. 690.	46 09 51.77 70 15 49.55	117 34 258 25	T. P. 689. T. P. 691.	51.4 86.2
T. P. 665.	46 10 20.31 70 16 20.49	74 10 292 14	T. P. 664. T. P. 666.	70.7 51.2	T. P. 691.	46 09 52.33 70 15 45.61	78 25 297 16	T. P. 690. T. P. 692.	86.2 29.7
T. P. 666.	46 10 19.68 70 16 18.28	112 14 332 54 78 44 50 261 45	T. P. 665. T. P. 667. Ref. Mon. C-73. Ref. Mon. S-71.	51.2 78.0 546.8 187.2	T. P. 692.	46 09 51.89 70 15 44.38	117 16 352 52	T. P. 691. T. P. 693.	29.7 43.0
Ref. Mon. C-73.	46 10 16.22 70 16 43.28	258 44 30 259 30 30	T. P. 666. Ref. Mon. S-71.	546.8 733.8	T. P. 693.	46 09 50.51 70 15 44.13	172 52 317 48	T. P. 692. T. P. 694.	43.0 51.3
Ref. Mon. S-71.	46 10 20.55 70 16 09.64	79 30 50 81 45	Ref. Mon. C-73. T. P. 666.	733.8 187.2	T. P. 694.	46 09 49.28 70 15 42.53	137 48 271 18	T. P. 693. T. P. 695.	51.3 58.9
T. P. 667.	46 10 17.43 70 16 16.62	152 54 311 09	T. P. 666. T. P. 668.	78.0 52.9	T. P. 695.	46 09 49.24 70 15 39.78	91 18 310 08	T. P. 694. T. P. 696.	58.9 38.0
T. P. 668.	46 10 16.30 70 16 14.77	131 09 0 44	T. P. 667. T. P. 669.	52.9 18.0	T. P. 696.	46 09 48.44 70 15 38.43	130 08 295 55	T. P. 695. T. P. 697.	38.0 36.4
T. P. 669.	46 10 15.72 70 16 14.78	180 44 78 40	T. P. 668. T. P. 670.	18.0 30.5	T. P. 697.	46 09 47.93 70 15 36.90	115 55 324 59	T. P. 696. T. P. 698.	36.4 34.3
T. P. 670.	46 10 15.53 70 16 16.17	258 40 31 14	T. P. 669. T. P. 671.	30.5 20.5	T. P. 698.	46 09 47.02 70 15 35.98	144 59 338 15	T. P. 697. T. P. 699.	34.3 82.0
T. P. 671.	46 10 14.96 70 16 16.67	211 14 297 04	T. P. 670. T. P. 672.	20.5 116.2	T. P. 699.	46 09 44.55 70 15 34.57	158 15 319 49	T. P. 698. T. P. 700.	82.0 76.0
T. P. 672.	46 10 13.24 70 16 11.84	117 04 247 45	T. P. 671. T. P. 673.	116.2 38.6	T. P. 700.	46 09 42.67 70 15 32.28	139 49 21 55	T. P. 699. T. P. 701.	76.0 13.6
T. P. 673.	46 10 13.72 70 16 10.18	67 45 293 59	T. P. 672. T. P. 674.	38.6 72.2	T. P. 701.	46 09 42.26 70 15 32.52	201 55 85 00	T. P. 700. T. P. 702.	13.6 42.4
T. P. 674.	46 10 12.77 70 16 07.10	113 59 324 49	T. P. 673. T. P. 675.	72.2 117.8	T. P. 702.	46 09 42.14 70 15 34.48	265 00 11 26	T. P. 701. T. P. 703.	42.4 35.4
T. P. 675.	46 10 09.65 70 16 03.94	144 49 247 56	T. P. 674. T. P. 676.	117.8 30.0	T. P. 703.	46 09 41.02 70 15 34.81	191 26 324 02	T. P. 702. T. P. 704.	35.4 81.4
					T. P. 704.	46 09 38.88 70 15 32.58	144 02 296 55	T. P. 703. T. P. 705.	81.4 58.7



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 705.....	46 09 38.02 70 15 30.14	116 55 337 22	T. P. 704..... T. P. 706.....	58.7 88.2	T. P. 734.....	46 09 14.41 70 14 59.07	131 21 295 06	T. P. 733..... T. P. 735.....	23.2 95.2
T. P. 706.....	46 09 35.38 70 15 28.56	157 22 296 20	T. P. 705..... T. P. 707.....	88.2 25.4	T. P. 735.....	46 09 13.10 70 14 55.05	115 06 325 06	T. P. 734..... T. P. 736.....	95.2 56.0
T. P. 707.....	46 09 35.02 70 15 27.50	116 20 292 22	T. P. 706..... T. P. 708.....	25.4 17.0	T. P. 736.....	46 09 11.62 70 14 53.56	145 06 30 38	T. P. 735..... T. P. 737.....	56.0 34.9
T. P. 708.....	46 09 34.81 70 15 26.77	112 22 327 12	T. P. 707..... T. P. 709.....	17.0 28.1	T. P. 737.....	46 09 10.64 70 14 54.38	210 38 15 45	T. P. 736..... T. P. 738.....	34.9 40.0
T. P. 709.....	46 09 34.05 70 15 26.06	147 12 304 40	T. P. 708..... T. P. 710.....	28.1 12.8	T. P. 738.....	46 09 09.39 70 14 54.89	195 45 84 25	T. P. 737..... T. P. 739.....	40.0 29.7
T. P. 710.....	46 09 33.81 70 15 25.57	124 40 236 59	T. P. 709..... T. P. 711.....	12.8 36.3	T. P. 739.....	46 09 09.30 70 14 56.27	264 25 2 53	T. P. 738..... T. P. 740.....	29.7 59.8
T. P. 711.....	46 09 34.45 70 15 24.15	56 59 260 41	T. P. 710..... T. P. 712.....	36.3 17.4	T. P. 740.....	46 09 07.37 70 14 56.41	182 53 321 05	T. P. 739..... T. P. 741.....	59.8 19.8
T. P. 712.....	46 09 34.54 70 15 25.35	80 41 302 14	T. P. 711..... T. P. 713.....	17.4 19.2	T. P. 741.....	46 09 06.87 70 14 55.83	141 05 287 07	T. P. 740..... T. P. 742.....	19.8 38.7
T. P. 713.....	46 09 34.21 70 15 22.59	122 14 21 54	T. P. 712..... T. P. 714.....	19.2 36.5	T. P. 742.....	46 09 06.50 70 14 54.10	107 07 239 26	T. P. 741..... T. P. 743.....	38.7 35.8
T. P. 714.....	46 09 33.11 70 15 23.23	201 54 357 45	T. P. 713..... T. P. 715.....	36.5 26.9	T. P. 743.....	46 09 07.09 70 14 52.67	59 26 261 37	T. P. 742..... T. P. 744.....	35.8 17.2
T. P. 715.....	46 09 32.24 70 15 23.18	177 45 323 34	T. P. 714..... T. P. 716.....	26.9 50.9	T. P. 744.....	46 09 07.17 70 14 51.87	81 37 287 06	T. P. 743..... T. P. 745.....	17.2 24.9
T. P. 716.....	46 09 30.92 70 15 21.77	143 34 293 02	T. P. 715..... T. P. 717.....	50.9 41.5	T. P. 745.....	46 09 06.93 70 14 50.76	107 06 313 51	T. P. 744..... T. P. 746.....	24.9 42.8
T. P. 717.....	46 09 30.39 70 15 19.99	113 02 264 31	T. P. 716..... T. P. 718.....	41.5 42.2	T. P. 746.....	46 09 05.97 70 14 49.33	133 51 349 53	T. P. 745..... T. P. 747.....	42.8 54.4
T. P. 718.....	46 09 30.52 70 15 18.03	84 31 219 15	T. P. 717..... T. P. 719.....	42.2 22.8	T. P. 747.....	46 09 04.24 70 14 48.88	169 53 313 55	T. P. 746..... T. P. 748.....	54.4 21.8
T. P. 719.....	46 09 31.09 70 15 17.36	39 15 273 42	T. P. 718..... T. P. 720.....	22.8 33.4	T. P. 748.....	46 09 03.75 70 14 48.15	133 55 283 52	T. P. 747..... T. P. 749.....	21.8 24.7
T. P. 720.....	46 09 31.02 70 15 15.80	93 42 293 52	T. P. 719..... T. P. 721.....	33.4 98.6	T. P. 749.....	46 09 03.56 70 14 47.03	103 52 259 08	T. P. 748..... T. P. 750.....	24.7 48.7
T. P. 721.....	46 09 29.73 70 15 11.60	113 52 321 12	T. P. 720..... T. P. 722.....	98.6 24.7	T. P. 750.....	46 09 03.85 70 14 44.80	79 08 233 20	T. P. 749..... T. P. 751.....	48.7 52.3
T. P. 722.....	46 09 29.11 70 15 10.88	141 12 341 30 54 51 249 01	T. P. 721..... T. P. 723..... Ref. Mon. C-75..... Ref. Mon. S-73.....	24.7 62.1 69.6 179.0	T. P. 751.....	46 09 04.87 70 14 42.85	53 20 203 31	T. P. 750..... T. P. 752.....	52.3 33.6
Ref. Mon. C-75.....	46 09 27.81 70 15 13.53	234 51 245 03	T. P. 722..... Ref. Mon. S-73.....	69.6 247.1	T. P. 752.....	46 09 05.86 70 14 42.22	23 31 263 36	T. P. 751..... T. P. 753.....	33.6 28.4
Ref. Mon. S-73.....	46 09 31.18 70 15 03.09	65 04 69 01	Ref. Mon. C-75..... T. P. 722.....	247.1 179.0	T. P. 753.....	46 09 05.97 70 14 40.91	83 36 296 25	T. P. 752..... T. P. 754.....	28.4 23.1
T. P. 723.....	46 09 27.20 70 15 09.96	161 30 359 23	T. P. 723..... T. P. 724.....	62.1 44.4	T. P. 754.....	46 09 05.63 70 14 39.95	116 25 329 30	T. P. 753..... T. P. 755.....	23.1 27.6
T. P. 724.....	46 09 25.76 70 15 09.94	179 23 286 46	T. P. 724..... T. P. 725.....	44.4 82.5	T. P. 755.....	46 09 04.86 70 14 39.29	149 30 14 26	T. P. 754..... T. P. 756.....	27.6 63.6
T. P. 725.....	46 09 24.99 70 15 06.26	106 46 316 20	T. P. 725..... T. P. 726.....	82.5 93.9	T. P. 756.....	46 09 02.87 70 14 40.03	194 26 302 03	T. P. 755..... T. P. 757.....	63.6 47.4
T. P. 726.....	46 09 22.79 70 15 03.24	136 20 42 45	T. P. 726..... T. P. 727.....	93.9 19.7	T. P. 757.....	46 09 02.06 70 14 38.16	122 03 345 21	T. P. 756..... T. P. 758.....	47.4 42.8
T. P. 727.....	46 09 22.32 70 15 03.86	222 45 330 55	T. P. 727..... T. P. 728.....	19.7 37.5	T. P. 758.....	46 09 00.71 70 14 37.66	165 21 326 42	T. P. 757..... T. P. 759.....	42.8 20.0
T. P. 728.....	46 09 21.26 70 15 03.01	150 55 282 04	T. P. 728..... T. P. 729.....	37.5 39.0	T. P. 759.....	46 09 00.17 70 14 37.15	146 42 297 52	T. P. 758..... T. P. 760.....	20.0 46.2
T. P. 729.....	46 09 21.00 70 15 01.23	102 04 327 44	T. P. 729..... T. P. 730.....	39.0 28.9	T. P. 760.....	46 08 59.47 70 14 35.24	117 52 269 30	T. P. 759..... T. P. 761.....	46.2 46.1
T. P. 730.....	46 09 20.20 70 15 00.51	147 44 35 04	T. P. 730..... T. P. 731.....	28.9 122.8	T. P. 761.....	46 08 59.49 70 14 33.10	89 30 223 31	T. P. 760..... T. P. 762.....	46.1 41.0
T. P. 731.....	46 09 16.95 70 15 03.80	215 04 348 21	T. P. 731..... T. P. 732.....	122.8 35.2	T. P. 762.....	46 09 00.45 70 14 31.78	43 31 190 52	T. P. 761..... T. P. 763.....	41.0 52.8
T. P. 732.....	46 09 15.83 70 15 03.47	168 21 290 20	T. P. 732..... T. P. 733.....	35.2 82.2	T. P. 763.....	46 09 02.13 70 14 31.32	10 52 167 40	T. P. 762..... T. P. 764.....	52.8 32.4
P. 733.....	46 09 14.91 70 14 59.88	110 20 311 21	T. P. 733..... T. P. 734.....	82.2 23.2	T. P. 764.....	46 09 03.15 70 14 31.64	347 40 226 48	T. P. 763..... T. P. 765.....	32.4 31.6

## ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 765	46 09 03.85 70 14 30.57	46 48 269 48	T. P. 764	31.6	T. P. 792	46 08 37.57 70 14 22.29	269 18 40 14	T. P. 791	5.9
			T. P. 766	48.0				T. P. 793	23.2
T. P. 766	46 09 03.86 70 14 28.33	89 48 319 28	T. P. 765	48.0	T. P. 793	46 08 36.99 70 14 22.99	220 14 46 16	T. P. 792	23.2
			T. P. 767	39.5				T. P. 794	50.2
T. P. 767	46 09 02.89 70 14 27.14	139 28 17 24	T. P. 766	39.5	T. P. 794	46 08 35.87 70 14 24.68	226 16 315 37	T. P. 793	50.2
			T. P. 768	20.7				T. P. 795	120.7
T. P. 768	46 09 02.25 70 14 27.43	197 24 351 19	T. P. 767	20.7	T. P. 795	46 08 32.08 70 14 23.28	165 37 89 14	T. P. 794	120.7
			T. P. 769	58.6				T. P. 796	8.9
T. P. 769	46 09 00.37 70 14 27.01	171 19 324 10	T. P. 768	58.6	T. P. 796	46 08 32.08 70 14 23.70	269 14 46 38	T. P. 795	8.9
		47 41 219 57	T. P. 770	26.6				T. P. 797	55.5
Ref. Mon. C-76	46 08 56.02 70 14 33.88	224 43 227 41	Ref. Mon. C-76	199.3	T. P. 797	46 08 30.85 70 14 25.58	226 38 334 59	T. P. 796	55.5
			Ref. Mon. S-74	124.1				T. P. 798	90.4
Ref. Mon. S-74	46 09 03.45 70 14 23.30	39 57 44 43	Ref. Mon. S-74	322.7	T. P. 798	46 08 28.19 70 14 23.79	154 59 21 50	T. P. 797	90.4
			T. P. 769	124.1				T. P. 799	19.6
T. P. 770	46 08 59.67 70 14 26.29	144 10 16 30	Ref. Mon. C-76	322.7	T. P. 799	46 08 27.60 70 14 24.13	201 50 59 34	T. P. 798	19.6
			T. P. 769	26.6				T. P. 800	55.1
T. P. 771	46 08 59.00 70 14 26.58	196 30 55 01	T. P. 771	21.8	T. P. 800	46 08 26.70 70 14 26.35	239 34 8 02	T. P. 799	55.1
			T. P. 772	21.8				T. P. 801	23.7
T. P. 772	46 08 58.47 70 14 27.66	235 01 11 13	T. P. 772	28.4	T. P. 801	46 08 25.94 70 14 26.50	188 02 284 58	T. P. 800	23.7
			T. P. 773	36.3				T. P. 802	48.2
T. P. 773	46 08 57.31 70 14 27.99	191 13 340 16	T. P. 773	36.3	T. P. 802	46 08 25.54 70 14 24.33	104 58 323 35	T. P. 801	48.2
			T. P. 774	18.9				T. P. 803	19.8
T. P. 774	46 08 56.74 70 14 27.70	160 16 303 11	T. P. 774	18.9	T. P. 803	46 08 25.02 70 14 23.78	143 35 354 44	T. P. 802	19.8
			T. P. 775	15.1				T. P. 804	28.8
T. P. 775	46 08 56.47 70 14 27.10	123 11 257 55	T. P. 775	15.1	T. P. 804	46 08 24.09 70 14 23.66	174 44 24 54	T. P. 803	28.8
			T. P. 776	25.3				T. P. 805	53.8
T. P. 776	46 08 56.64 70 14 25.95	77 55 278 54	T. P. 776	25.3	T. P. 805	46 08 22.51 70 14 24.72	204 54 113 03	T. P. 804	53.8
			T. P. 777	23.5				T. P. 806	24.3
T. P. 777	46 08 56.52 70 14 24.87	98 54 303 02	T. P. 777	23.5	T. P. 806	46 08 22.82 70 14 25.76	293 03 85 42	T. P. 805	24.3
			T. P. 778	35.1				T. P. 807	21.4
T. P. 778	46 08 55.90 70 14 23.50	123 02 327 34	T. P. 778	35.1	T. P. 807	46 08 22.77 70 14 26.75	265 42 11 25	T. P. 806	21.4
			T. P. 779	151.0				T. P. 808	39.5
T. P. 779	46 08 51.78 70 14 19.72	147 34 336 46	T. P. 779	151.0	T. P. 808	46 08 21.51 70 14 27.11	191 25 19 04	T. P. 807	39.5
			T. P. 778	151.0				T. P. 809	19.3
T. P. 780	46 08 48.47 70 14 17.68	156 46 311 07	T. P. 780	111.0	T. P. 809	46 08 20.92 70 14 27.41	199 04 308 53	T. P. 808	19.3
			T. P. 779	111.0				T. P. 810	24.2
T. P. 781	46 08 47.83 70 14 16.63	131 07 275 12	T. P. 781	30.0	T. P. 810	46 08 20.43 70 14 26.53	128 53 323 28	T. P. 809	24.2
			T. P. 780	30.0				T. P. 811	29.7
T. P. 782	46 08 47.74 70 14 15.10	95 12 290 55	T. P. 782	32.8	T. P. 811	46 08 19.66 70 14 25.71	143 28 335 14	T. P. 810	29.7
			T. P. 781	29.2				T. P. 812	48.4
T. P. 783	46 08 47.40 70 14 13.83	110 55 356 38	T. P. 783	29.2	T. P. 812	46 08 18.23 70 14 24.76	155 14 32 21	T. P. 811	48.4
			T. P. 782	41.3				T. P. 813	27.6
T. P. 784	46 08 46.06 70 14 13.72	176 38 23 37	T. P. 784	41.3	T. P. 813	46 08 17.48 70 14 25.45	212 21 339 07	T. P. 812	27.6
			T. P. 783	58.0				T. P. 814	26.4
T. P. 785	46 08 44.34 70 14 14.80	203 37 309 22	T. P. 785	58.0	T. P. 814	46 08 16.68 70 14 25.01	159 07 39 51	T. P. 813	26.4
			T. P. 784	55.3				T. P. 815	16.3
T. P. 786	46 08 43.20 70 14 12.81	129 22 7 10	T. P. 786	55.3	T. P. 815	46 08 16.27 70 14 25.50	219 51 134 11	T. P. 814	16.3
		246 07	T. P. 785	302.0				T. P. 816	19.0
Ref. Mon. S-75	46 08 47.16 70 13 59.94	66 07 135 05 20	Ref. Mon. S-75	302.0	T. P. 816	46 08 16.70 70 14 26.13	314 11 105 55	T. P. 815	19.0
			Ref. Mon. S-74	710.1				T. P. 817	26.9
T. P. 787	46 08 42.52 70 14 12.93	187 10 70 53	T. P. 787	21.1	T. P. 817	46 08 16.94 70 14 27.34	285 55 5 45	T. P. 816	26.9
			T. P. 786	78.7				T. P. 818	28.6
T. P. 788	46 08 41.69 70 14 16.40	250 53 43 38	T. P. 788	78.7	T. P. 818	46 08 16.02 70 14 27.47	185 45 20 13	T. P. 817	28.6
			T. P. 787	56.8				T. P. 819	16.3
T. P. 789	46 08 40.36 70 14 18.22	223 38 51 40	T. P. 789	56.8	T. P. 819	46 08 15.53 70 14 27.73	200 13 7 26	T. P. 818	16.3
			T. P. 788	41.7			109 23 292 53	T. P. 820	36.5
T. P. 790	46 08 39.52 70 14 19.74	231 40 38 59	T. P. 790	41.7	Ref. Mon. C-77	46 08 16.63 70 14 32.26	289 23 291 41	Ref. Mon. C-77	102.9
			T. P. 789	77.4				Ref. Mon. S-76	195.4
T. P. 791	46 08 37.57 70 14 22.01	218 59 89 18	T. P. 791	77.4	Ref. Mon. S-76	46 08 13.06 70 14 19.35	111 41 112 53	T. P. 819	298.2
			T. P. 790	77.4				T. P. 819	195.4
			T. P. 792	5.9	T. P. 820	46 08 14.35 70 14 27.95	187 26 313 46	T. P. 819	36.5



BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF  
ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 821-----	46 08 13.69 70 14 26.96	133 46 354 20	T. P. 820----- T. P. 822-----	29.4 18.9	T. P. 853-----	46 07 51.28 70 14 40.27	182 25 312 51	T. P. 852----- T. P. 854-----	22.4 34.8
T. P. 822-----	46 08 13.08 70 14 26.88	174 20 29 56	T. P. 821----- T. P. 823-----	18.9 14.8	T. P. 854-----	46 07 50.52 70 14 39.08	132 51 351 27	T. P. 853----- T. P. 855-----	34.8 25.9
T. P. 823-----	46 08 12.67 70 14 27.22	209 56 105 16	T. P. 822----- T. P. 824-----	14.8 27.4	T. P. 855-----	46 07 49.69 70 14 38.90	171 27 28 21	T. P. 854----- T. P. 856-----	25.9 67.4
T. P. 824-----	46 08 12.90 70 14 28.45	285 16 346 07	T. P. 823----- T. P. 825-----	27.4 27.3	T. P. 856-----	46 07 47.77 70 14 40.40	208 21 353 37	T. P. 855----- T. P. 857-----	67.4 17.7
T. P. 825-----	46 08 12.04 70 14 28.15	166 07 85 58	T. P. 824----- T. P. 826-----	27.3 23.4	T. P. 857-----	46 07 47.20 70 14 40.30	173 37 300 57	T. P. 856----- T. P. 858-----	17.7 14.9
T. P. 826-----	46 08 11.99 70 14 29.23	265 58 59 01	T. P. 825----- T. P. 827-----	23.4 13.7	T. P. 858-----	46 07 46.95 70 14 39.71	120 57 321 54	T. P. 857----- T. P. 859-----	14.9 18.1
T. P. 827-----	46 08 11.76 70 14 29.78	239 01 354 39	T. P. 826----- T. P. 828-----	13.7 25.3	T. P. 859-----	46 07 46.49 70 14 39.19	141 54 18 04	T. P. 858----- T. P. 860-----	18.1 30.7
T. P. 828-----	46 08 10.94 70 14 29.67	174 39 74 59	T. P. 827----- T. P. 829-----	25.3 21.8	T. P. 860-----	46 07 45.54 70 14 39.63	198 04 321 58	T. P. 859----- T. P. 861-----	30.7 21.9
T. P. 829-----	46 08 10.76 70 14 30.65	254 59 29 27	T. P. 828----- T. P. 830-----	21.8 15.2	T. P. 861-----	46 07 44.98 70 14 39.00	141 58 0 20	T. P. 860----- T. P. 862-----	21.9 33.6
T. P. 830-----	46 08 10.33 70 14 31.00	209 27 12 29	T. P. 829----- T. P. 831-----	15.2 23.5	T. P. 862-----	46 07 43.89 70 14 39.01	180 20 35 30	T. P. 861----- T. P. 863-----	33.6 15.6
T. P. 831-----	46 08 09.59 70 14 31.24	192 29 20 52	T. P. 830----- T. P. 832-----	23.5 44.8	T. P. 863-----	46 07 43.48 70 14 39.44	215 30 82 56	T. P. 862----- T. P. 864-----	15.6 18.3
T. P. 832-----	46 08 08.23 70 14 31.98	200 52 38 05	T. P. 831----- T. P. 833-----	44.8 13.4	T. P. 864-----	46 07 43.41 70 14 40.28	262 56 133 13	T. P. 863----- T. P. 865-----	18.3 21.0
T. P. 833-----	46 08 07.89 70 14 32.36	218 05 93 19	T. P. 832----- T. P. 834-----	13.4 14.0	T. P. 865-----	46 07 43.88 70 14 40.99	313 13 52 26	T. P. 864----- T. P. 866-----	21.0 15.1
T. P. 834-----	46 08 07.92 70 14 33.01	273 19 33 20	T. P. 833----- T. P. 835-----	14.0 19.4	T. P. 866-----	46 07 43.53 70 14 41.55	232 26 80 44	T. P. 865----- T. P. 867-----	15.1 24.4
T. P. 835-----	46 08 07.40 70 14 33.51	213 20 335 52	T. P. 834----- T. P. 836-----	19.4 25.5	T. P. 867-----	46 07 43.45 70 14 42.68	260 44 50 43	T. P. 866----- T. P. 868-----	24.4 11.4
T. P. 836-----	46 08 06.64 70 14 33.02	155 52 350 34	T. P. 835----- T. P. 837-----	25.5 21.8	T. P. 868-----	46 07 43.22 70 14 43.09	230 43 30 48	T. P. 867----- T. P. 869-----	11.4 17.9
T. P. 837-----	46 08 05.95 70 14 32.86	170 34 267 28	T. P. 836----- T. P. 838-----	21.8 21.2	T. P. 869-----	46 07 42.72 70 14 43.51	210 48 0 28	T. P. 868----- T. P. 870-----	17.9 37.9
T. P. 838-----	46 08 05.98 70 14 31.87	87 28 336 23	T. P. 837----- T. P. 839-----	21.2 16.4	T. P. 870-----	46 07 41.49 70 14 43.53	180 28 35 58	T. P. 869----- T. P. 871-----	37.9 20.1
T. P. 839-----	46 08 05.49 70 14 31.56	156 23 22 07	T. P. 838----- T. P. 840-----	16.4 51.7	T. P. 871-----	46 07 40.96 70 14 44.08	215 58 357 30	T. P. 870----- T. P. 872-----	20.1 11.9
T. P. 840-----	46 08 03.94 70 14 32.47	202 07 33 38	T. P. 839----- T. P. 841-----	51.7 103.8	T. P. 872-----	46 07 40.58 70 14 44.05	177 30 274 27	T. P. 871----- T. P. 873-----	11.9 17.0
T. P. 841-----	46 08 01.14 70 14 35.15	213 38 12 15	T. P. 840----- T. P. 842-----	103.8 46.3	T. P. 873-----	46 07 40.53 70 14 43.26	94 27 1 12	T. P. 872----- T. P. 874-----	17.0 30.6
T. P. 842-----	46 07 59.67 70 14 35.60	192 15 38 07	T. P. 841----- T. P. 843-----	46.3 17.0	T. P. 874-----	46 07 39.54 70 14 43.29	181 12 319 12	T. P. 873----- T. P. 875-----	30.6 18.9
T. P. 843-----	46 07 59.24 70 14 36.09	218 07 8 16	T. P. 842----- T. P. 844-----	17.0 44.5	T. P. 875-----	46 07 39.08 70 14 42.72	139 12 18 28	T. P. 874----- T. P. 876-----	18.9 17.1
T. P. 844-----	46 07 57.81 70 14 36.39	188 16 23 50	T. P. 843----- T. P. 845-----	44.5 31.7	T. P. 876-----	46 07 38.55 70 14 42.97	198 28 94 46	T. P. 875----- T. P. 877-----	17.1 25.2
T. P. 845-----	46 07 56.87 70 14 36.99	203 50 294 53	T. P. 844----- T. P. 846-----	31.7 25.1	T. P. 877-----	46 07 38.62 70 14 44.14	274 46 61 46	T. P. 876----- T. P. 878-----	25.2 10.3
T. P. 846-----	46 07 56.53 70 14 35.93	114 53 311 53	T. P. 845----- T. P. 847-----	25.1 22.2	T. P. 878-----	46 07 38.46 70 14 44.56	241 46 319 13	T. P. 877----- T. P. 879-----	10.3 18.9
T. P. 847-----	46 07 56.05 70 14 35.16	131 53 348 45	T. P. 846----- T. P. 848-----	22.2 47.5	T. P. 879-----	46 07 38.00 70 14 43.98	139 13 3 51	T. P. 878----- T. P. 880-----	18.9 11.4
T. P. 848-----	46 07 54.54 70 14 34.72	168 45 29 34	T. P. 847----- T. P. 849-----	47.5 75.3	T. P. 880-----	46 07 37.63 70 14 44.02	183 51 73 37	T. P. 879----- T. P. 881-----	11.4 22.8
T. P. 849-----	46 07 52.42 70 14 36.45	209 34 78 55	T. P. 848----- T. P. 850-----	75.3 31.0	T. P. 881-----	46 07 37.42 70 14 45.04	253 37 18 16	T. P. 880----- T. P. 882-----	22.8 11.5
T. P. 850-----	46 07 52.23 70 14 37.87	258 55 70 42	T. P. 849----- T. P. 851-----	31.0 27.1	T. P. 882-----	46 07 37.07 70 14 45.21	193 16 326 39	T. P. 881----- T. P. 883-----	11.5 20.1
T. P. 851-----	46 07 51.94 70 14 39.06	250 42 94 54	T. P. 850----- T. P. 852-----	27.1 25.1	T. P. 883-----	46 07 36.53 70 14 44.69	146 39 12 40	T. P. 882----- T. P. 884-----	20.1 8.8
T. P. 852-----	46 07 52.01 70 14 40.23	274 54 2 25	T. P. 851----- T. P. 853-----	25.1 22.4	T. P. 884-----	46 07 36.25 70 14 44.78	192 40 34 17	T. P. 883----- T. P. 885-----	8.8 39.0

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 885.....	46 07 35.20 70 14 45.81	214 17 16 46	T. P. 884..... T. P. 886.....	39.0 27.0	T. P. 914.....	46 07 21.09 70 14 55.17	210 00 19 45	T. P. 913..... T. P. 915.....	32.7 19.7
T. P. 886.....	46 07 34.37 70 14 46.17	196 46 89 22	T. P. 885..... T. P. 887.....	27.0 31.9	T. P. 915.....	46 07 20.48 70 14 55.48	199 45 86 40	T. P. 914..... T. P. 916.....	19.7 28.9
T. P. 887.....	46 07 34.36 70 14 47.65	269 22 26 55	T. P. 886..... T. P. 888.....	31.9 20.1	T. P. 916.....	46 07 20.43 70 14 56.82	266 40 15 44	T. P. 915..... T. P. 917.....	28.9 55.2
T. P. 888.....	46 07 33.77 70 14 48.08	206 55 5 00	T. P. 887..... T. P. 889.....	20.1 21.4	T. P. 917.....	46 07 18.71 70 14 57.52	195 44 36 08	T. P. 916..... T. P. 918.....	55.2 48.4
T. P. 889.....	46 07 33.08 70 14 48.17	185 00 31 59	T. P. 888..... T. P. 890.....	21.4 10.6	T. P. 918.....	46 07 17.44 70 14 58.81	216 08 22 08	T. P. 917..... T. P. 919.....	48.4 58.2
T. P. 890.....	46 07 32.79 70 14 48.43	211 59 116 53	T. P. 889..... T. P. 891.....	10.6 16.5	T. P. 919.....	46 07 15.70 70 14 59.87	202 08 37 03	T. P. 918..... T. P. 920.....	58.2 52.6
T. P. 891.....	46 07 33.03 70 14 49.11	296 53 58 01	T. P. 890..... T. P. 892.....	16.5 23.6	T. P. 920.....	46 07 14.34 70 15 01.34	217 03 352 27	T. P. 919..... T. P. 921.....	52.6 20.0
T. P. 892.....	46 07 32.63 70 14 50.04	238 01 25 49	T. P. 891..... T. P. 893.....	23.6 11.8	T. P. 921.....	46 07 13.69 70 15 01.22	172 27 94 14	T. P. 920..... T. P. 922.....	20.0 12.8
T. P. 893.....	46 07 32.29 70 14 50.28	205 49 40 21	T. P. 892..... T. P. 894.....	11.8 22.8	T. P. 922.....	46 07 13.72 70 15 01.82	274 14 85 01	T. P. 921..... T. P. 923.....	12.8 43.1
T. P. 894.....	47 07 31.72 70 14 50.97	220 21 97 59 112 44 290 24	T. P. 893..... T. P. 895..... Ref. Mon. C-78 Ref. Mon. S-77	22.8 19.2 160.6 161.8	T. P. 923.....	46 07 13.60 70 15 03.82	265 01 32 47	T. P. 922..... T. P. 924.....	43.1 21.5
Ref. Mon. C-78	46 07 33.73 70 14 57.87	291 33 292 44	Ref. Mon. S-77 T. P. 894.....	322.4 160.6	T. P. 924.....	46 07 13.02 70 15 04.36	212 47 337 02	T. P. 923..... T. P. 925.....	21.5 29.0
Ref. Mon. S-77	46 07 29.90 70 14 48.91	110 24 111 34	T. P. 894..... Ref. Mon. C-78	161.8 322.4	T. P. 925.....	46 07 12.15 70 15 03.83	157 02 18 02	T. P. 924..... T. P. 926.....	29.0 25.6
T. P. 895.....	46 07 31.81 70 14 51.86	277 59 150 24	T. P. 895..... T. P. 896.....	19.2 22.9	T. P. 926.....	46 07 11.36 70 15 04.20	198 02 61 55	T. P. 925..... T. P. 927.....	25.6 13.7
T. P. 896.....	46 07 32.45 70 14 52.38	330 24 95 17	T. P. 896..... T. P. 897.....	22.9 12.4	T. P. 927.....	46 07 11.15 70 15 04.76	241 55 119 29	T. P. 926..... T. P. 928.....	13.7 14.6
T. P. 897.....	46 07 32.49 70 14 52.96	275 17 8 40	T. P. 897..... T. P. 898.....	12.4 36.5	T. P. 928.....	46 07 11.39 70 15 05.36	299 29 41 42 109 18 294 15	T. P. 927..... T. P. 929..... Ref. Mon. C-79 Ref. Mon. S-78	14.6 24.0 117.0 218.4
T. P. 898.....	46 07 31.32 70 14 53.22	188 40 337 25	T. P. 898..... T. P. 899.....	36.5 32.4	Ref. Mon. C-79	46 07 12.64 70 15 10.50	289 18 292 31	T. P. 928..... Ref. Mon. S-78	117.0 335.1
T. P. 899.....	46 07 30.35 70 14 52.64	157 25 346 18	T. P. 899..... T. P. 900.....	32.4 37.3	Ref. Mon. S-78	46 07 08.48 70 14 56.08	112 31 114 15	Ref. Mon. C-79 T. P. 928.....	335.1 218.4
T. P. 900.....	46 07 29.18 70 14 52.23	166 18 328 20	T. P. 900..... T. P. 901.....	37.3 33.4	T. P. 929.....	46 07 10.81 70 15 06.10	221 42 105 20	T. P. 928..... T. P. 930.....	24.0 16.5
T. P. 901.....	46 07 28.26 70 14 51.41	148 20 17 08	T. P. 901..... T. P. 902.....	33.4 14.1	T. P. 930.....	46 07 10.95 70 15 06.84	285 20 54 22	T. P. 929..... T. P. 931.....	16.5 18.2
T. P. 902.....	46 07 27.82 70 14 51.60	197 08 65 59	T. P. 902..... T. P. 903.....	14.1 26.8	T. P. 931.....	46 07 10.60 70 15 07.53	234 22 352 04	T. P. 930..... T. P. 932.....	18.2 13.6
T. P. 903.....	46 07 27.47 70 14 52.74	245 59 7 10	T. P. 903..... T. P. 904.....	26.8 19.2	T. P. 932.....	46 07 10.17 70 15 07.44	172 04 316 52	T. P. 931..... T. P. 933.....	13.6 22.4
T. P. 904.....	46 07 26.85 70 14 52.86	187 10 59 22	T. P. 904..... T. P. 905.....	19.2 12.6	T. P. 933.....	46 07 09.64 70 15 06.73	136 52 340 02	T. P. 932..... T. P. 934.....	22.4 16.6
T. P. 905.....	46 07 26.64 70 14 53.36	239 22 124 46	T. P. 905..... T. P. 906.....	12.6 27.8	T. P. 934.....	46 07 09.13 70 15 06.47	160 02 333 02	T. P. 933..... T. P. 935.....	16.6 28.9
T. P. 906.....	46 07 27.16 70 14 54.42	304 46 60 51	T. P. 906..... T. P. 907.....	27.8 14.1	T. P. 935.....	46 07 08.30 70 15 05.86	153 02 354 48	T. P. 934..... T. P. 936.....	28.9 43.8
T. P. 907.....	46 07 26.93 70 14 55.00	240 51 350 04	T. P. 907..... T. P. 908.....	14.1 23.0	T. P. 936.....	46 07 06.89 70 15 05.67	174 48 20 30	T. P. 935..... T. P. 937.....	43.8 34.2
T. P. 908.....	46 07 26.20 70 14 54.81	170 04 3 20	T. P. 908..... T. P. 909.....	23.0 21.3	T. P. 937.....	46 07 05.85 70 15 06.23	200 30 345 27	T. P. 936..... T. P. 938.....	34.2 25.0
T. P. 909.....	46 07 25.51 70 14 54.87	183 20 349 37	T. P. 909..... T. P. 910.....	21.3 25.9	T. P. 938.....	46 07 05.07 70 15 05.94	165 27 35 12	T. P. 937..... T. P. 939.....	25.0 22.2
T. P. 910.....	46 07 24.68 70 14 54.65	169 37 334 49	T. P. 910..... T. P. 911.....	25.9 25.6	T. P. 939.....	46 07 04.48 70 15 06.53	215 12 84 58	T. P. 938..... T. P. 940.....	22.2 12.6
T. P. 911.....	46 07 23.94 70 14 54.15	154 49 32 01	T. P. 911..... T. P. 912.....	25.6 30.7	T. P. 940.....	46 07 04.44 70 15 07.11	264 58 131 12	T. P. 939..... T. P. 941.....	12.6 20.0
T. P. 912.....	46 07 23.09 70 14 54.90	212 01 342 26	T. P. 912..... T. P. 913.....	30.7 35.3	T. P. 941.....	46 07 04.87 70 15 07.81	311 12 56 32	T. P. 940..... T. P. 942.....	20.0 21.2
T. P. 913.....	46 07 22.00 70 14 54.41	162 26 30 00	T. P. 913..... T. P. 914.....	35.3 32.7	T. P. 942.....	46 07 04.49 70 15 08.64	236 32 9 24	T. P. 941..... T. P. 943.....	21.2 37.3



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 943-----	46 07 03.30 70 15 08.92	189 24 337 52	T. P. 942----- T. P. 944-----	37.3 56.7	T. P. 974-----	46 06 48.66 70 15 17.47	27 14 262 59	T. P. 973----- T. P. 975-----	13.9 8.0
T. P. 944-----	46 07 01.60 70 15 07.93	157 52 359 14	T. P. 943----- T. P. 945-----	56.7 30.8	T. P. 975-----	46 06 48.69 70 15 17.10	82 59 5 00	T. P. 974----- T. P. 976-----	8.0 14.1
T. P. 945-----	46 07 00.60 70 15 07.91	179 14 38 30	T. P. 944----- T. P. 946-----	30.8 38.1	T. P. 976-----	46 06 48.24 70 15 17.16	185 00 301 08	T. P. 975----- T. P. 977-----	14.1 10.2
T. P. 946-----	46 06 59.64 70 15 09.01	218 30 59 19	T. P. 945----- T. P. 947-----	38.1 46.4	T. P. 977-----	46 06 48.06 70 15 16.75	121 08 327 54	T. P. 976----- T. P. 978-----	10.2 20.6
T. P. 947-----	46 06 58.87 70 15 10.87	239 19 357 40	T. P. 946----- T. P. 948-----	46.4 32.6	T. P. 978-----	46 06 47.50 70 15 16.24	147 54 4 57	T. P. 977----- T. P. 979-----	20.6 13.0
T. P. 948-----	46 06 57.81 70 15 10.81	177 40 32 05	T. P. 947----- T. P. 949-----	32.6 13.1	T. P. 979-----	46 06 47.08 70 15 16.29	184 57 276 21	T. P. 978----- T. P. 980-----	13.0 13.7
T. P. 949-----	46 06 57.45 70 15 11.13	212 05 344 47	T. P. 948----- T. P. 950-----	13.1 90.8	T. P. 980-----	46 06 47.03 70 15 15.66	96 21 296 12	T. P. 979----- T. P. 981-----	13.7 14.0
T. P. 950-----	46 06 54.62 70 15 10.02	164 47 34 40	T. P. 949----- T. P. 951-----	90.8 13.6	T. P. 981-----	46 06 46.83 70 15 15.08	116 12 310 59	T. P. 980----- T. P. 982-----	14.0 12.2
T. P. 951-----	46 06 54.25 70 15 10.38	214 40 120 01	T. P. 950----- T. P. 952-----	13.6 45.6	T. P. 982-----	46 06 46.57 70 15 14.65	130 59 349 38	T. P. 981----- T. P. 983-----	12.2 19.5
T. P. 952-----	46 06 54.99 70 15 12.22	300 01 95 49	T. P. 951----- T. P. 953-----	45.6 18.4	T. P. 983-----	46 06 45.95 70 15 14.48	169 38 14 44	T. P. 982----- T. P. 984-----	19.5 33.2
T. P. 953-----	46 06 55.05 70 15 13.07	275 49 31 14	T. P. 952----- T. P. 954-----	18.4 18.2	T. P. 984-----	46 06 44.91 70 15 14.88	194 44 345 54	T. P. 983----- T. P. 985-----	33.2 12.8
T. P. 954-----	46 06 54.55 70 15 13.51	211 14 314 34	T. P. 953----- T. P. 955-----	18.2 36.6	T. P. 985-----	46 06 44.51 70 15 14.73	165 54 58 34	T. P. 984----- T. P. 986-----	12.8 14.2
T. P. 955-----	46 06 53.72 70 15 12.30	134 34 327 42	T. P. 954----- T. P. 956-----	36.6 20.6	T. P. 986-----	46 06 44.27 70 15 15.30	238 34 80 19	T. P. 985----- T. P. 987-----	14.2 13.5
T. P. 956-----	46 06 53.15 70 15 11.79	147 42 16 55	T. P. 955----- T. P. 957-----	20.6 21.2	T. P. 987-----	46 06 44.20 70 15 15.92	260 19 139 56	T. P. 986----- T. P. 988-----	13.5 12.5
T. P. 957-----	46 06 52.50 70 15 12.07	196 55 95 07	T. P. 956----- T. P. 958-----	21.2 28.3	T. P. 988-----	46 06 44.51 70 15 16.29	319 56 24 11	T. P. 987----- T. P. 989-----	12.5 41.0
T. P. 958-----	46 06 52.58 70 15 13.39	275 07 122 46	T. P. 957----- T. P. 959-----	28.3 18.5	T. P. 989-----	46 06 43.29 70 15 17.07	204 11 279 50	T. P. 988----- T. P. 990-----	41.0 12.5
T. P. 959-----	46 06 52.90 70 15 14.11	302 46 82 00	T. P. 958----- T. P. 960-----	18.5 13.0	T. P. 990-----	46 06 43.22 70 15 16.50	99 50 339 32	T. P. 989----- T. P. 991-----	12.5 10.2
T. P. 960-----	46 06 52.84 70 15 14.71	262 00 340 31	T. P. 959----- T. P. 961-----	13.0 25.2	T. P. 991-----	46 06 42.92 70 15 16.33	159 32 53 44	T. P. 990----- T. P. 992-----	10.2 20.5
T. P. 961-----	46 06 52.08 70 15 14.32	160 31 338 30	T. P. 960----- T. P. 962-----	25.2 14.8	T. P. 992-----	46 06 42.52 70 15 17.10	233 44 354 20	T. P. 991----- T. P. 993-----	20.5 12.4
T. P. 962-----	46 06 51.63 70 15 14.07	158 30 37 27	T. P. 961----- T. P. 963-----	14.8 7.2	T. P. 993-----	46 06 42.12 70 15 17.05	174 20 267 55	T. P. 992----- T. P. 994-----	12.4 13.9
T. P. 963-----	46 06 51.45 70 15 14.27	217 27 136 27	T. P. 962----- T. P. 964-----	7.2 15.3	T. P. 994-----	46 06 42.14 70 15 16.40	87 55 318 32	T. P. 993----- T. P. 995-----	13.9 7.3
T. P. 964-----	46 06 51.81 70 15 14.77	316 27 72 12	T. P. 963----- T. P. 965-----	15.3 9.3	T. P. 995-----	46 06 41.96 70 15 16.17	138 32 30 04	T. P. 994----- T. P. 996-----	7.3 18.3
T. P. 965-----	46 06 51.71 70 15 15.18	252 12 3 37	T. P. 964----- T. P. 966-----	9.3 32.1	T. P. 996-----	46 06 41.45 70 15 16.60	210 04 96 03	T. P. 995----- T. P. 997-----	18.3 17.6
T. P. 966-----	46 06 50.68 70 15 15.27	183 37 97 15	T. P. 965----- T. P. 967-----	32.1 23.6	T. P. 997-----	46 06 41.51 70 15 17.42	276 03 21 21	T. P. 996----- T. P. 998-----	17.6 10.8
T. P. 967-----	46 06 50.77 70 15 16.36	277 15 119 22	T. P. 966----- T. P. 968-----	23.6 15.2	T. P. 998-----	46 06 41.18 70 15 17.60	201 21 321 42	T. P. 997----- T. P. 999-----	10.8 17.3
T. P. 968-----	46 06 51.01 70 15 16.98	299 22 15 58	T. P. 967----- T. P. 969-----	15.2 17.7	T. P. 999-----	46 06 40.74 70 15 17.10	141 42 0 12	T. P. 998----- T. P. 1000-----	17.3 13.8
T. P. 969-----	46 06 50.46 70 15 17.20	195 58 63 38	T. P. 968----- T. P. 970-----	17.7 23.9	T. P. 1000-----	46 06 40.30 70 15 17.10	180 12 53 20	T. P. 999----- T. P. 1001-----	13.8 17.1
T. P. 970-----	46 06 50.12 70 15 18.20	243 38 25 32	T. P. 969----- T. P. 971-----	23.9 14.4	T. P. 1001-----	46 06 39.97 70 15 17.74	233 20 93 10	T. P. 1000----- T. P. 1002-----	17.1 21.3
T. P. 971-----	46 06 49.70 70 15 18.49	205 32 349 01	T. P. 970----- T. P. 972-----	14.4 44.4	T. P. 1002-----	46 06 40.01 70 15 18.73	273 10 105 48	T. P. 1001----- T. P. 1003-----	21.3 24.9
T. P. 972-----	46 06 48.29 70 15 18.10	169 01 277 19	T. P. 971----- T. P. 973-----	44.4 7.2	T. P. 1003-----	46 06 40.22 70 15 19.84	285 48 45 58	T. P. 1002----- T. P. 1004-----	24.9 8.9
T. P. 973-----	46 06 48.26 70 15 17.77	97 19 207 14	T. P. 972----- T. P. 974-----	7.2 13.9	T. P. 1004-----	46 06 40.02 70 15 20.14	225 58 344 59	T. P. 1003----- T. P. 1005-----	8.9 10.4

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—SOUTHWEST BRANCH OF ST. JOHN RIVER—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 1005....	46 06 39.70 70 15 20.02	164 59 18 01	T. P. 1004.....	10.4	T. P. 1025.....	46 06 30.78 70 15 19.52	93 58 332 19	T. P. 1024.....	13.7
			T. P. 1006.....	17.9				T. P. 1026.....	25.4
T. P. 1006.....	46 06 39.14 70 15 20.27	198 01 121 21	T. P. 1005.....	17.9	T. P. 1026.....	46 06 30.06 70 15 18.97	152 19 312 12	T. P. 1025.....	25.4
			T. P. 1007.....	11.1				T. P. 1027.....	21.9
T. P. 1007.....	46 06 39.33 70 15 20.72	301 21 59 46	T. P. 1006.....	11.1	T. P. 1027.....	46 06 29.58 70 15 18.21	132 12 330 45	T. P. 1026.....	21.9
			T. P. 1008.....	10.2			21 32	T. P. 1028.....	12.2
T. P. 1008.....	46 06 39.17 70 15 21.13	239 46 359 50	T. P. 1007.....	10.2			201 39	Ref. Mon. C-81....	398.8
			T. P. 1009.....	42.6				Ref. Mon. S-79....	189.2
T. P. 1009.....	46 06 37.79 70 15 21.12	179 50 267 55	T. P. 1008.....	42.6	Ref. Mon. C-81....	46 06 17.57 70 15 25.03	201 32 201 34 10	T. P. 1027.....	398.8
			T. P. 1010.....	14.1				Ref. Mon. S-79....	588.0
T. P. 1010.....	46 06 37.80 70 15 20.47	87 55 259 15	T. P. 1009.....	14.1	T. P. 1028.....	46 06 29.23 70 15 17.94	150 45 349 30	T. P. 1027.....	12.2
			T. P. 1011.....	16.1				T. P. 1029.....	18.0
T. P. 1011.....	46 06 37.90 70 15 19.73	79 15 305 32	T. P. 1010.....	16.1	T. P. 1029.....	46 06 28.66 70 15 17.78	169 30 320 01	T. P. 1028.....	18.0
			T. P. 1012.....	14.5				T. P. 1030.....	16.9
T. P. 1012.....	46 06 37.63 70 15 19.18	125 32 337 34	T. P. 1011.....	14.5	T. P. 1030.....	46 06 28.24 70 15 17.28	140 01 306 01	T. P. 1029.....	16.9
			T. P. 1013.....	24.2				T. P. 1031.....	54.3
T. P. 1013.....	46 06 36.90 70 15 18.75	157 34 61 31	T. P. 1012.....	24.2	T. P. 1031.....	46 06 27.20 70 15 15.23	126 01 239 09	T. P. 1030.....	46.7
			T. P. 1014.....	14.7				T. P. 1032.....	25.4
T. P. 1014.....	46 06 36.68 70 15 19.35	241 31 30 38	T. P. 1013.....	14.7	T. P. 1032.....	46 06 27.98 70 15 13.37	59 09 289 59	T. P. 1031.....	46.7
		108 12	T. P. 1015.....	21.9				T. P. 1033.....	25.4
		294 39	Ref. Mon. C-80....	93.7	T. P. 1033.....	46 06 27.70 70 15 12.26	109 59 332 50	T. P. 1032.....	16.8
			Ref. Mon. S-79....	103.7				T. P. 1034.....	29.8
Ref. Mon. C-80....	46 06 37.62 70 15 23.50	288 12 291 35	T. P. 1014.....	93.7	T. P. 1034.....	46 06 27.21 70 15 11.90	152 50 22 20	T. P. 1033.....	16.8
			Ref. Mon. S-79....	197.0				T. P. 1035.....	29.8
Ref. Mon. S-79....	46 06 35.28 70 15 14.96	21 34 20 21 39	Ref. Mon. C-81....	588.0	T. P. 1035.....	46 06 26.32 70 15 12.42	202 20 340 28	T. P. 1034.....	32.5
		111 35	T. P. 1027.....	189.2				T. P. 1036.....	32.5
		114 39	Ref. Mon. C-80....	197.0	T. P. 1036.....	46 06 25.33 70 15 11.92	160 28 11 54	T. P. 1035.....	8.6
			T. P. 1014.....	103.7				T. P. 1037.....	8.6
T. P. 1015.....	46 06 36.06 70 15 19.87	210 38 14 14	T. P. 1014.....	21.9	T. P. 1037.....	46 06 25.06 70 15 12.00	191 54 328 04	T. P. 1036.....	14.9
			T. P. 1016.....	13.9				T. P. 1038.....	32.8
T. P. 1016.....	46 06 35.63 70 15 20.03	194 14 350 24	T. P. 1015.....	13.9	T. P. 1038.....	46 06 24.65 70 15 11.63	148 04 318 05	T. P. 1037.....	14.9
			T. P. 1017.....	34.0				T. P. 1039.....	32.8
T. P. 1017.....	46 06 34.54 70 15 19.76	170 24 42 56	T. P. 1016.....	34.0	T. P. 1039.....	46 06 23.86 70 15 10.61	138 05 8 42	T. P. 1038.....	32.8
			T. P. 1018.....	19.2				T. P. 1040.....	41.8
T. P. 1018.....	46 06 34.09 70 15 20.37	222 56 20 53	T. P. 1017.....	19.2	T. P. 1040.....	46 06 22.52 70 15 10.91	188 42 350 14	T. P. 1039.....	41.8
			T. P. 1019.....	25.5				T. P. 1041.....	97.4
T. P. 1019.....	46 06 33.31 70 15 20.80	200 53 40 04	T. P. 1018.....	25.5	T. P. 1041.....	46 06 19.41 70 15 10.14	170 14 21 02	T. P. 1040.....	97.4
			T. P. 1020.....	18.5				T. P. 1042.....	138.6
T. P. 1020.....	46 06 32.86 70 15 21.35	220 04 340 15	T. P. 1019.....	18.5	T. P. 1042.....	46 06 15.22 70 15 12.45	201 02 355 57	T. P. 1041.....	283.6
			T. P. 1021.....	24.6				T. P. 1043.....	167.2
T. P. 1021.....	46 06 32.10 70 15 20.96	160 15 304 12	T. P. 1020.....	24.6	T. P. 1043.....	46 06 06.06 70 15 11.52	175 57 13 58	T. P. 1042.....	283.6
			T. P. 1022.....	22.8				T. P. 1044.....	167.2
T. P. 1022.....	46 06 31.69 70 15 20.09	124 12 13 51	T. P. 1021.....	22.8	T. P. 1044.....	46 06 00.80 70 15 13.40	193 58 65 58	T. P. 1043.....	167.2
			T. P. 1023.....	19.6				T. P. 1045.....	155.1
T. P. 1023.....	46 06 31.07 70 15 20.30	193 51 338 11	T. P. 1022.....	19.6	T. P. 1045.....	46 05 58.76 70 15 19.99	245 58 92 30	T. P. 1044.....	155.1
			T. P. 1024.....	8.6				Mon. 314.....	173.7
T. P. 1024.....	46 06 30.82 70 15 20.16	158 11 273 58	T. P. 1023.....	8.6					
			T. P. 1025.....	13.7					

GEOGRAPHIC POSITIONS OF MONUMENTS MARKING THE INTERNATIONAL BOUNDARY  
FROM THE SOURCE OF THE SOUTHWEST BRANCH OF THE ST. JOHN RIVER TO THE  
HEAD OF HALLS STREAM

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 314-----	46 05 59.00 70 15 28.07	272 30 156 35 13	T. P. 1045----- Mon. 314-1-----	173.7 81.10	Mon. 318-1-----	46 05 59.71 70 17 11.55	197 55 23 314 54 46	Mon. 318----- Mon. 318-2-----	1.06 79.40
Mon. 314-1-----	46 06 01.41 70 15 29.57	336 35 12 100 40 17	Mon. 314----- Mon. 314-2-----	81.10 151.38	Mon. 318-2-----	46 05 57.90 70 17 08.94	134 54 48 333 23 12	Mon. 318-1----- Mon. 318-3-----	79.40 176.90
Mon. 314-2-----	46 06 02.32 70 15 36.50	280 40 12 117 40 16	Mon. 314-1----- Mon. 314-3-----	151.38 105.31	Mon. 318-3-----	46 05 52.77 70 17 05.25	153 23 15 33 25 41	Mon. 318-2----- Mon. 318-4-----	176.90 106.25
Mon. 314-3-----	46 06 03.90 70 15 40.84	297 40 13 74 49 15	Mon. 314-2----- Mon. 314-4-----	105.31 102.10	Mon. 318-4-----	46 05 49.90 70 17 07.97	213 25 39 65 01 07	Mon. 318-3----- Mon. 318-5-----	106.25 59.47
Mon. 314-4-----	46 06 03.04 70 15 45.43	254 49 12 50 21 13	Mon. 314-3----- Mon. 314-5-----	102.10 58.27	Mon. 318-5-----	46 05 49.09 70 17 10.48	245 01 05 46 44 33	Mon. 318-4----- Mon. 318-6-----	59.47 267.52
Mon. 314-5-----	46 06 01.83 70 15 47.52	230 21 12 103 11 12	Mon. 314-4----- Mon. 314-6-----	58.27 56.36	Mon. 318-6-----	46 05 43.15 70 17 19.55	226 44 26 62 27 58	Mon. 318-5----- Mon. 318-7-----	267.52 56.86
Mon. 314-6-----	46 06 02.25 70 15 50.07	283 11 10 116 42 10	Mon. 314-5----- Mon. 314-7-----	56.36 36.76	Mon. 318-7-----	46 05 42.30 70 17 21.90	242 27 56 57 07 29	Mon. 318-6----- Mon. 318-8-----	56.86 82.62
Mon. 314-7-----	46 06 02.78 70 15 51.60	296 42 09 74 32 08	Mon. 314-6----- Mon. 314-8-----	36.76 61.78	Mon. 318-8-----	46 05 40.85 70 17 25.13	237 07 27 18 03 01	Mon. 318-7----- Mon. 318-9-----	82.62 326.90
Mon. 314-8-----	46 06 02.25 70 15 54.37	254 32 06 113 00 05	Mon. 314-7----- Mon. 314-9-----	61.78 71.93	Mon. 318-9-----	46 05 30.78 70 17 29.84	198 02 58 2 01 37	Mon. 318-8----- Mon. 318-10-----	326.90 175.56
Mon. 314-9-----	46 06 03.16 70 15 57.46	293 00 03 78 55 01	Mon. 314-8----- Mon. 314-10-----	71.93 53.08	Mon. 318-10-----	46 05 25.10 70 17 30.13	182 01 37 352 38 19	Mon. 318-9----- Mon. 318-11-----	175.56 83.74
Mon. 314-10-----	46 06 02.83 70 15 59.88	258 54 59 110 39 56	Mon. 314-9----- Mon. 314-11-----	53.08 203.66	Mon. 318-11-----	46 05 22.41 70 17 29.63	172 38 19 16 32 02	Mon. 318-10----- Mon. 319-----	83.74 102.43
Mon. 314-11-----	46 06 05.16 70 16 08.75	290 39 50 79 59 45	Mon. 314-10----- Mon. 315-----	203.66 80.03	Mon. 319-----	46 05 19.23 70 17 30.99	196 32 01 1 17 55	Mon. 318-11----- Mon. 319-1-----	102.43 12.97
Mon. 315-----	46 06 04.71 70 16 12.42	259 59 42 77 08 55	Mon. 314-11----- Mon. 315-1-----	80.03 66.69	Mon. 319-1-----	46 05 18.81 70 17 31.00	181 17 55 8 16 28	Mon. 319----- Mon. 319-2-----	12.97 131.00
Mon. 315-1-----	46 06 04.23 70 16 15.45	257 08 53 120 34 55	Mon. 315----- Mon. 315-2-----	66.69 96.38	Mon. 319-2-----	46 05 14.61 70 17 31.88	188 16 27 31 35 27	Mon. 319-1----- Mon. 319-3-----	131.00 64.47
Mon. 315-2-----	46 06 05.82 70 16 19.31	300 34 52 112 23 21	Mon. 315-1----- Mon. 315-3-----	96.38 58.99	Mon. 319-3-----	46 05 12.83 70 17 33.45	211 35 26 48 17 57	Mon. 319-2----- Mon. 319-4-----	64.47 53.56
Mon. 315-3-----	46 06 06.54 70 16 21.85	292 23 19 143 09 26	Mon. 315-2----- Mon. 315-4-----	58.99 51.51	Mon. 319-4-----	46 05 11.68 70 17 35.31	228 17 56 27 13 40	Mon. 319-3----- Mon. 319-5-----	53.56 82.20
Mon. 315-4-----	46 06 07.88 70 16 23.29	323 09 25 88 50 19	Mon. 315-3----- Mon. 315-5-----	51.51 78.79	Mon. 319-5-----	46 05 09.31 70 17 37.06	207 13 39 51 49 36	Mon. 319-4----- Mon. 319-6-----	82.20 57.99
Mon. 315-5-----	46 06 07.83 70 16 26.96	268 50 16 52 02 39	Mon. 315-4----- Mon. 315-6-----	78.79 112.96	Mon. 319-6-----	46 05 08.15 70 17 39.19	231 49 34 70 59 08	Mon. 319-5----- Mon. 319-7-----	57.99 334.51
Mon. 315-6-----	46 06 05.58 70 16 31.10	232 02 36 83 49 25	Mon. 315-5----- Mon. 316-----	112.96 6.91	Mon. 319-7-----	46 05 04.62 70 17 53.91	20 58 57 61 06 23	Mon. 319-6----- Mon. 319-8-----	334.51 74.37
Mon. 316-----	46 06 05.55 70 16 31.42	263 49 25 72 32 25	Mon. 315-6----- Mon. 316-1-----	6.91 58.24	Mon. 319-8-----	46 05 03.46 70 17 56.94	241 06 21 49 51 48	Mon. 319-7----- Mon. 319-9-----	74.37 61.86
Mon. 316-1-----	46 06 04.99 70 16 34.01	252 32 23 58 51 54	Mon. 316----- Mon. 316-2-----	58.24 170.67	Mon. 319-9-----	46 05 02.16 70 17 59.14	229 51 46 73 12 38	Mon. 319-8----- Mon. 319-10-----	61.86 95.17
Mon. 316-2-----	46 06 02.13 70 16 40.81	238 51 49 65 14 44	Mon. 316-1----- Mon. 316-3-----	170.67 167.31	Mon. 319-10-----	46 05 01.27 70 18 03.38	253 12 35 51 01 28	Mon. 319-9----- Mon. 319-11-----	95.17 86.33
Mon. 316-3-----	46 05 59.86 70 16 47.88	245 14 39 90 18 58	Mon. 316-2----- Mon. 316-4-----	167.31 45.17	Mon. 319-11-----	46 04 59.52 70 18 06.50	231 01 26 33 39 56	Mon. 319-10----- Mon. 319-12-----	86.33 98.39
Mon. 316-4-----	46 05 59.87 70 16 49.99	270 18 56 105 37 21	Mon. 316-3----- Mon. 317-----	45.17 22.53	Mon. 319-12-----	46 04 56.86 70 18 09.04	213 39 54 15 52 02	Mon. 319-11----- Mon. 319-13-----	98.39 144.97
Mon. 317-----	46 06 00.06 70 16 51.00	285 37 21 104 41 46	Mon. 316-4----- Mon. 317-1-----	22.53 220.45	Mon. 319-13-----	46 04 52.35 70 18 10.89	195 52 01 351 36 11	Mon. 319-12----- Mon. 319-14-----	144.97 76.18
Mon. 317-1-----	46 06 01.88 70 17 00.93	284 41 39 76 43 00	Mon. 317----- Mon. 317-2-----	220.45 72.22	Mon. 319-14-----	46 04 49.91 70 18 10.37	171 36 11 304 15 16	Mon. 319-13----- Mon. 319-15-----	76.18 110.05
Mon. 317-2-----	46 06 01.34 70 17 04.20	256 42 58 53 50 10	Mon. 317-1----- Mon. 317-3-----	72.22 79.81	Mon. 319-15-----	46 04 47.90 70 18 06.14	124 15 19 311 20 12	Mon. 319-14----- Mon. 319-16-----	110.05 70.25
Mon. 317-3-----	46 05 59.81 70 17 07.20	233 50 07 83 39 24	Mon. 317-2----- Mon. 318-----	79.81 93.20	Mon. 319-16-----	46 04 46.40 70 18 03.68	131 20 14 314 37 08	Mon. 319-15----- Mon. 319-17-----	70.25 60.85
Mon. 318-----	46 05 59.74 70 17 11.54	268 39 21 17 55 23	Mon. 317-3----- Mon. 318-1-----	93.20 1.06	Mon. 319-17-----	46 04 45.01 70 18 01.66	134 37 09 7 20 21	Mon. 319-16----- Mon. 319-18-----	60.85 73.47



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 319-18-----	46 04 42.65 70 18 02.10	187 20 21 32 02 40	Mon. 319-17----- Mon. 319-19-----	73.47 82.86	Mon. 320-16-----	46 03 40.42 70 18 26.92	116 50 54 256 52 23	Mon. 320 15----- Mon. 320-17-----	106.11 41.68
Mon. 319-19-----	46 04 40.38 70 18 04.15	212 02 39 63 34 48	Mon. 319-18----- Mon. 319-20-----	82.86 64.07	Mon. 320 17-----	46 03 40.72 70 18 25.04	76 52 24 243 01 29	Mon. 320-16----- Mon. 320-18-----	41.68 53.63
Mon. 319-20-----	46 04 39.46 70 18 06.82	243 34 46 77 47 56	Mon. 319-19----- Mon. 319-21-----	64.07 64.27	Mon. 320-18-----	46 03 41.51 70 18 22.81	63 01 31 272 05 07	Mon. 320-17----- Mon. 320-19-----	53.63 33.14
Mon. 319-21-----	46 04 39.02 70 18 09.74	257 47 54 32 52 46	Mon. 319-20----- Mon. 319-22-----	64.27 107.43	Mon. 320-19-----	46 03 41.47 70 18 21.27	92 05 08 237 46 49	Mon. 320-18----- Mon. 320 20-----	33.14 65.68
Mon. 319-22-----	46 04 36.09 70 18 12.45	212 52 44 359 11 02	Mon. 319-21----- Mon. 319-23-----	107.43 232.01	Mon. 320-20-----	46 03 42.60 70 18 18.69	57 46 51 238 23 39	Mon. 320-19----- Mon. 320 21-----	65.68 112.13
Mon. 319-23-----	46 04 28.58 70 18 12.30	179 11 02 322 17 12	Mon. 319-22----- Mon. 319-24-----	232.01 76.38	Mon. 320-21-----	46 03 44.51 70 18 14.24	58 23 42 287 40 37	Mon. 320-20----- Mon. 320-22-----	112.13 22.89
Mon. 319-24-----	46 04 26.62 70 18 10.12	142 17 14 352 20 54	Mon. 319-23----- Mon. 319-25-----	76.38 77.04	Mon. 320-22-----	46 03 44.28 70 18 13.23	107 40 38 0 49 20	Mon. 320-21----- Mon. 320-23-----	22.89 52.98
Mon. 319-25-----	46 04 24.15 70 18 09.65	172 20 54 58 28 41	Mon. 319-24----- Mon. 319-26-----	77.04 225.32	Mon. 320-23-----	46 03 42.57 70 18 13.26	180 49 20 313 33 43	Mon. 320-22----- Mon. 320-24-----	52.98 147.63
Mon. 319-26-----	46 04 20.33 70 18 18.59	238 28 35 38 31 50	Mon. 319-25----- Mon. 319-27-----	225.32 57.79	Mon. 320-24-----	46 03 39.27 70 18 08.29	133 33 47 251 15 25	Mon. 320-23----- Mon. 320 25-----	147.63 50.11
Mon. 319-27-----	46 04 18.87 70 18 20.26	218 31 49 352 14 29	Mon. 319-26----- Mon. 319-28-----	57.79 32.86	Mon. 320-25-----	46 03 39.79 70 18 06.08	71 15 27 306 50 53	Mon. 320-24----- Mon. 320 26-----	50.11 67.79
Mon. 319-28-----	46 04 17.82 70 18 20.06	172 14 29 313 03 27	Mon. 319-27----- Mon. 319-29-----	32.86 66.28	Mon. 320-26-----	46 03 38.48 70 18 03.56	126 50 55 245 16 13	Mon. 320-25----- Mon. 320-27-----	67.79 80.35
Mon. 319-29-----	46 04 16.35 70 18 17.80	133 03 29 284 02 31	Mon. 319-28----- Mon. 319-30-----	66.28 51.86	Mon. 320-27-----	46 03 39.57 70 18 00.16	65 16 15 271 07 33	Mon. 320-26----- Mon. 320-28-----	80.35 49.31
Mon. 319-30-----	46 04 15.94 70 18 15.46	104 02 33 253 09 31	Mon. 319-29----- Mon. 319-31-----	51.86 75.58	Mon. 320-28-----	46 03 39.54 70 17 57.87	91 07 34 293 29 28	Mon. 320-27----- Mon. 321-----	49.31 37.11
Mon. 319 31-----	46 04 16.65 70 18 12.09	73 09 33 327 10 18	Mon. 319-30----- Mon. 319-32-----	75.58 31.96	Mon. 321-----	46 03 39.06 70 17 56.28	113 29 29 294 19 40	Mon. 320-28----- Mon. 321-1-----	37.11 63.75
Mon. 319-32-----	46 04 15.78 70 18 11.29	147 10 19 2 20 35	Mon. 319-31----- Mon. 320-----	31.96 18.01	Mon. 321-1-----	46 03 38.20 70 17 53.58	114 19 42 278 22 56	Mon. 321----- Mon. 321-2-----	63.75 88.78
Mon. 320-----	46 04 15.20 70 18 11.32	182 20 35 358 57 46	Mon. 319-32----- Mon. 320-1-----	18.01 47.36	Mon. 321-2-----	46 03 37.79 70 17 49.50	98 22 59 240 37 08	Mon. 321-1----- Mon. 321-3-----	88.78 64.95
Mon. 320-1-----	46 04 13.66 70 18 11.28	178 57 46 48 29 21	Mon. 320----- Mon. 320-2-----	47.36 100.83	Mon. 321-3-----	46 03 38.82 70 17 46.86	60 37 10 271 16 02	Mon. 321-2----- Mon. 321-4-----	64.95 84.65
Mon. 320-2-----	46 04 11.55 70 18 14.79	228 29 18 63 45 10	Mon. 320-1----- Mon. 320-3-----	100.83 51.87	Mon. 321-4-----	46 03 38.76 70 17 42.92	91 16 05 289 23 16	Mon. 321-3----- Mon. 321-5-----	84.65 66.92
Mon. 320 3-----	46 04 10.80 70 18 16.96	243 45 09 68 31 07	Mon. 320-2----- Mon. 320-4-----	51.87 58.25	Mon. 321-5-----	46 03 38.04 70 17 39.99	109 23 18 255 44 18	Mon. 321-4----- Mon. 321-6-----	66.92 45.19
Mon. 320-4-----	46 04 10.11 70 18 19.48	248 31 05 48 29 39	Mon. 320-3----- Mon. 320-5-----	58.25 156.87	Mon. 321-6-----	46 03 38.40 70 17 37.95	75 44 19 279 19 14	Mon. 321-5----- Mon. 321-7-----	45.19 84.59
Mon. 320-5-----	46 04 06.75 70 18 24.95	228 29 35 23 10 19	Mon. 320-4----- Mon. 320-6-----	156.87 118.67	Mon. 321-7-----	46 03 37.96 70 17 34.06	99 19 17 223 03 13	Mon. 321-6----- Mon. 321-8-----	84.59 108.10
Mon. 320-6-----	46 04 03.21 70 18 27.12	203 10 18 53 44 11	Mon. 320-5----- Mon. 320-7-----	118.67 101.63	Mon. 321-8-----	46 03 40.51 70 17 30.63	43 03 15 253 10 48	Mon. 321-7----- Mon. 321-9-----	108.10 40.57
Mon. 320-7-----	46 04 01.22 70 18 30.93	233 44 08 24 53 37	Mon. 320 6----- Mon. 320-8-----	101.63 160.79	Mon. 321-9-----	46 03 40.89 70 17 28.82	73 10 49 230 23 40	Mon. 321-8----- Mon. 321-10-----	40.57 161.40
Mon. 320-8-----	46 03 56.50 70 18 34.08	204 53 35 55 42 53	Mon. 320 7----- Mon. 320 9-----	160.79 116.30	Mon. 321-10-----	46 03 44.23 70 17 23.04	50 23 44 263 24 01	Mon. 321-9----- Mon. 321-11-----	161.40 123.62
Mon. 320 9-----	46 03 54.37 70 18 38.55	235 42 50 53 38 44	Mon. 320 8----- Mon. 320-10-----	116.30 70.95	Mon. 321-11-----	46 03 44.69 70 17 17.33	83 24 05 230 49 11	Mon. 321-10----- Mon. 321-12-----	123.62 60.55
Mon. 320 10-----	46 03 53.01 70 18 41.21	233 38 42 9 51 18	Mon. 320-9----- Mon. 320-11-----	70.95 48.60	Mon. 321-12-----	46 03 45.92 70 17 15.14	50 49 13 262 52 50	Mon. 321-11----- Mon. 321-13-----	60.55 82.81
Mon. 320 11-----	46 03 51.46 70 18 41.60	189 51 18 323 14 52	Mon. 320-10----- Mon. 320-12-----	48.60 66.39	Mon. 321-13-----	46 03 46.26 70 17 11.32	82 52 53 290 34 13	Mon. 321-12----- Mon. 321-14-----	82.81 56.44
Mon. 320-12-----	46 03 49.74 70 18 39.75	143 14 53 314 31 50	Mon. 320-11----- Mon. 320-13-----	66.39 62.92	Mon. 321-14-----	46 03 45.62 70 17 08.86	110 34 15 257 14 54	Mon. 321-13----- Mon. 321-15-----	56.44 75.14
Mon. 320-13-----	46 03 48.31 70 18 37.66	134 31 52 339 38 11	Mon. 320-12----- Mon. 320-14-----	62.92 95.10	Mon. 321-15-----	46 03 46.15 70 17 05.45	77 14 56 325 47 48	Mon. 321-14----- Mon. 321-16-----	75.14 77.78
Mon. 320-14-----	46 03 45.42 70 18 36.12	159 38 12 315 58 05	Mon. 320-13----- Mon. 320-15-----	95.10 148.28	Mon. 321-16-----	46 03 44.07 70 17 03.42	145 47 49 292 18 42	Mon. 321-15----- Mon. 321-17-----	77.78 42.54
Mon. 320-15-----	46 03 41.97 70 18 31.33	135 58 08 296 50 51	Mon. 320-14----- Mon. 320-16-----	148.28 106.11	Mon. 321-17-----	46 03 43.54 70 17 01.59	112 18 43 339 08 24	Mon. 321-16----- Mon. 321-18-----	42.54 37.62

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 321-18-----	46 03 42.41 70 17 00.97	159 08 25 1 05 06	Mon. 321-17----- Mon. 321-19-----	37.62 55.98	Mon. 322-21-----	46 03 01.97 70 16 56.90	250 30 05 33 41 02	Mon. 322-20----- Mon. 322-22-----	67.29 55.31
Mon. 321-19-----	46 03 40.59 70 17 01.02	181 05 06 327 32 29	Mon. 321-18----- Mon. 321-20-----	55.98 119.22	Mon. 322-22-----	46 03 00.48 70 16 58.32	213 41 01 46 07 28	Mon. 322-21----- Mon. 322-23-----	55.31 76.86
Mon. 321-20-----	46 03 37.34 70 16 58.04	147 32 31 245 35 25	Mon. 321-19----- Mon. 321-21-----	119.22 51.36	Mon. 322-23-----	46 02 58.75 70 17 00.90	226 07 26 76 33 17	Mon. 322-22----- Mon. 322-24-----	76.86 32.92
Mon. 321-21-----	46 03 38.02 70 16 55.86	65 35 27 272 50 16	Mon. 321-20----- Mon. 321-22-----	51.36 83.89	Mon. 322-24-----	46 02 58.50 70 17 02.39	256 33 16 42 17 36	Mon. 322-23----- Mon. 322-25-----	32.92 116.61
Mon. 321-22-----	46 03 37.89 70 16 51.96	92 50 19 231 14 15	Mon. 321-21----- Mon. 321-23-----	83.89 52.84	Mon. 322-25-----	46 02 55.71 70 17 06.04	222 17 33 28 34 59	Mon. 322-24----- Mon. 323-----	116.61 37.99
Mon. 321-23-----	46 03 38.96 70 16 50.05	160 23 46 271 48 19	Mon. 321-22----- Mon. 321-24-----	52.84 39.85	Mon. 323-----	46 02 54.63 70 17 06.88	208 34 58 33 08 37	Mon. 322-25----- Mon. 323-1-----	37.99 11.72
Mon. 321-24-----	46 03 38.92 70 16 48.19	91 48 20 249 47 17	Mon. 321-23----- Mon. 321-25-----	39.85 41.75	Mon. 323-1-----	46 02 54.31 70 17 07.18	213 08 37 71 15 57	Mon. 323----- Mon. 323-2-----	11.72 96.15
Mon. 321-25-----	46 03 39.39 70 16 46.37	69 47 17 330 13 39	Mon. 321-24----- Mon. 321-26-----	41.75 50.11	Mon. 323-2-----	46 02 53.31 70 17 11.42	251 15 54 46 00 42	Mon. 323-1----- Mon. 323-3-----	96.15 63.99
Mon. 321-26-----	46 03 37.98 70 16 45.21	150 13 40 36 10 26	Mon. 321-25----- Mon. 321-27-----	50.11 29.22	Mon. 323-3-----	46 02 51.88 70 17 13.56	226 00 40 63 38 00	Mon. 323-2----- Mon. 323-4-----	63.99 57.79
Mon. 321-27-----	46 03 37.21 70 16 46.02	216 10 25 337 13 05	Mon. 321-26----- Mon. 322-----	29.22 69.19	Mon. 323-4-----	46 02 51.04 70 17 15.96	243 37 58 32 08 03	Mon. 323-3----- Mon. 323-5-----	57.79 67.09
Mon. 322-----	46 03 35.15 70 16 44.77	157 13 07 340 23 45	Mon. 321-27----- Mon. 322-1-----	69.19 56.64	Mon. 323-5-----	46 02 49.20 70 17 17.62	212 08 02 73 29 03	Mon. 323-4----- Mon. 323-6-----	67.09 90.50
Mon. 322-1-----	46 03 33.42 70 16 43.88	160 23 46 56 19 50	Mon. 322----- Mon. 322-2-----	56.64 105.65	Mon. 323-6-----	46 02 48.37 70 17 21.66	253 29 00 58 50 35	Mon. 323-5----- Mon. 323-7-----	90.50 35.36
Mon. 322-2-----	46 03 31.52 70 16 47.98	236 19 47 2 38 15	Mon. 322-1----- Mon. 322-3-----	105.65 21.44	Mon. 323-7-----	46 02 47.78 70 17 23.07	238 50 34 33 09 16	Mon. 323-6----- Mon. 323-8-----	35.36 79.70
Mon. 322-3-----	46 03 30.83 70 16 48.02	182 38 15 336 08 07	Mon. 322-2----- Mon. 322-4-----	21.44 168.29	Mon. 323-8-----	46 02 45.62 70 17 25.10	213 09 15 8 50 36	Mon. 323-7----- Mon. 323-9-----	79.70 64.64
Mon. 322-4-----	46 03 25.84 70 16 44.85	156 08 09 349 53 49	Mon. 322-3----- Mon. 322-5-----	168.29 89.66	Mon. 323-9-----	46 02 43.55 70 17 25.56	188 50 36 51 09 18	Mon. 323-8----- Mon. 323-10-----	64.64 42.19
Mon. 322-5-----	46 03 22.98 70 16 44.12	169 23 46 30 25 47	Mon. 322-4----- Mon. 322-6-----	89.66 50.91	Mon. 323-10-----	46 02 42.69 70 17 27.09	231 09 17 352 28 54	Mon. 323-9----- Mon. 323-11-----	42.19 74.62
Mon. 322-6-----	46 03 21.56 70 16 45.32	210 25 46 77 01 20	Mon. 322-5----- Mon. 322-7-----	50.91 48.60	Mon. 323-11-----	46 02 40.30 70 17 26.63	172 28 54 39 25 03	Mon. 323-10----- Mon. 323-12-----	74.62 79.48
Mon. 322-7-----	46 03 21.21 70 16 47.52	257 01 18 46 32 33	Mon. 322-6----- Mon. 322-8-----	48.60 22.35	Mon. 323-12-----	46 02 38.31 70 17 28.98	219 25 01 71 51 49	Mon. 323-11----- Mon. 323-13-----	79.48 56.74
Mon. 322-8-----	46 03 20.71 70 16 48.28	226 32 33 4 40 54	Mon. 322-7----- Mon. 322-9-----	22.35 112.47	Mon. 323-13-----	46 02 37.73 70 17 31.49	251 51 47 42 15 56	Mon. 323-12----- Mon. 323-14-----	56.74 47.03
Mon. 322-9-----	46 03 17.08 70 16 48.71	184 40 53 55 09 26	Mon. 322-8----- Mon. 322-10-----	112.47 47.36	Mon. 323-14-----	46 02 36.61 70 17 32.96	222 15 55 50 38 30	Mon. 323-13----- Mon. 323-15-----	47.03 51.65
Mon. 322-10-----	46 03 16.20 70 16 50.52	235 09 25 95 18 40	Mon. 322-9----- Mon. 322-11-----	47.36 36.78	Mon. 323-15-----	46 02 35.55 70 17 34.82	230 38 29 16 13 24	Mon. 323-14----- Mon. 323-16-----	51.65 66.12
Mon. 322-11-----	46 03 16.31 70 16 52.22	275 18 39 41 50 42	Mon. 322-10----- Mon. 322-12-----	36.78 23.76	Mon. 323-16-----	46 02 33.49 70 17 35.67	196 13 23 37 34 08	Mon. 323-15----- Mon. 323-17-----	66.12 141.61
Mon. 322-12-----	46 03 15.74 70 16 52.96	221 50 41 338 13 38	Mon. 322-11----- Mon. 322-13-----	23.76 57.44	Mon. 323-17-----	46 02 29.86 70 17 39.69	217 34 05 33 46 44	Mon. 323-16----- Mon. 323-18-----	141.61 67.59
Mon. 322-13-----	46 03 14.01 70 16 51.96	158 13 39 19 54 00	Mon. 322-12----- Mon. 322-14-----	57.44 33.97	Mon. 323-18-----	46 02 28.04 70 17 41.44	213 46 43 75 52 25	Mon. 323-17----- Mon. 323-19-----	67.59 70.00
Mon. 322-14-----	46 03 12.98 70 16 52.50	199 54 00 22 42 21	Mon. 322-13----- Mon. 322-15-----	33.97 33.36	Mon. 323-19-----	46 02 27.48 70 17 44.59	255 52 23 157 22 37	Mon. 323-18----- Mon. 324-----	70.00 8.34
Mon. 322-15-----	46 03 11.98 70 16 53.10	202 42 20 317 09 11	Mon. 322-14----- Mon. 322-16-----	33.36 136.52	Mon. 324-----	46 02 27.73 70 17 44.74	337 22 37 73 28 47	Mon. 323-19----- Mon. 324-1-----	8.34 54.88
Mon. 322-16-----	46 03 08.74 70 16 48.78	137 09 14 25 16 17	Mon. 322-15----- Mon. 322-17-----	136.52 40.39	Mon. 324-1-----	46 02 27.23 70 17 47.19	253 28 45 101 18 29	Mon. 324----- Mon. 324-2-----	54.88 65.11
Mon. 322-17-----	46 03 07.56 70 16 49.58	205 16 16 61 05 49	Mon. 322-16----- Mon. 322-18-----	40.39 33.26	Mon. 324-2-----	46 02 27.64 70 17 50.16	281 18 27 67 50 41	Mon. 324-1----- Mon. 324-3-----	65.11 58.68
Mon. 322-18-----	46 03 07.04 70 16 50.94	241 05 48 32 44 51	Mon. 322-17----- Mon. 322-19-----	33.26 110.76	Mon. 324-3-----	46 02 26.92 70 17 52.69	247 50 39 2 35 23	Mon. 324-2----- Mon. 324-4-----	58.68 97.66
Mon. 322-19-----	46 03 04.02 70 16 53.72	212 44 49 6 35 10	Mon. 322-18----- Mon. 322-20-----	110.76 41.12	Mon. 324-4-----	46 02 23.76 70 17 52.89	182 35 23 41 23 06	Mon. 324-3----- Mon. 324-5-----	97.66 86.01
Mon. 322-20-----	46 03 02.70 70 16 53.94	186 35 10 70 30 07	Mon. 322-19----- Mon. 322-21-----	41.12 67.29	Mon. 324-5-----	46 02 21.67 70 17 55.54	221 23 04 53 58 17	Mon. 324-4----- Mon. 324-6-----	86.01 25.72

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 324-6-----	46 02 21.18 70 17 56.50	233 58 16 15 00 11	Mon. 324-5----- Mon. 324-7-----	25.72 37.58	Mon. 325-4-----	46 01 34.46 70 18 17.95	227 14 50 50 28 17	Mon. 325-3----- Mon. 325-5-----	107.98 71.66
Mon. 324-7-----	46 02 20.01 70 17 56.95	195 00 11 41 53 42	Mon. 324-6----- Mon. 324-8-----	37.58 81.79	Mon. 325-5-----	46 01 32.98 70 18 20.52	230 28 15 39 50 12	Mon. 325-4----- Mon. 325-6-----	71.66 62.53
Mon. 324-8-----	46 02 18.04 70 17 59.49	221 53 40 17 34 52	Mon. 324-7----- Mon. 324-9-----	81.79 90.22	Mon. 325-6-----	46 01 31.43 70 18 22.38	219 50 11 52 55 08	Mon. 325-5----- Mon. 325-7-----	62.53 65.61
Mon. 324-9-----	46 02 15.25 70 18 00.76	197 34 51 9 07 21	Mon. 324-8----- Mon. 324-10-----	90.22 38.79	Mon. 325-7-----	46 01 30.15 70 18 24.81	232 55 06 74 31 03	Mon. 325-6----- Mon. 325-8-----	65.61 88.81
Mon. 324-10-----	46 02 14.01 70 18 01.05	189 07 21 31 06 45	Mon. 324-9----- Mon. 324-11-----	38.79 29.74	Mon. 325-8-----	46 01 29.38 70 18 28.79	254 31 00 60 53 58	Mon. 325-7----- Mon. 325-9-----	88.81 97.91
Mon. 324-11-----	46 02 13.18 70 18 01.76	211 06 44 331 35 56	Mon. 324-10----- Mon. 324-12-----	29.74 42.60	Mon. 325-9-----	46 01 27.84 70 18 32.77	240 53 55 74 32 53	Mon. 325-8----- Mon. 325-10-----	97.91 96.12
Mon. 324-12-----	46 02 11.97 70 18 00.82	151 35 57 3 39 38	Mon. 324-11----- Mon. 324-13-----	42.60 73.55	Mon. 325-10-----	46 01 27.01 70 18 37.08	254 32 50 54 57 48	Mon. 325-9----- Mon. 325-11-----	96.12 165.18
Mon. 324-13-----	46 02 09.59 70 18 01.04	183 39 38 30 58 19	Mon. 324-12----- Mon. 324-14-----	73.55 26.12	Mon. 325-11-----	46 01 23.94 70 18 43.36	234 57 43 45 12 41	Mon. 325-10----- Mon. 325-12-----	165.18 70.20
Mon. 324-14-----	46 02 08.87 70 18 01.66	210 58 19 87 33 18	Mon. 324-13----- Mon. 324-15-----	26.12 35.16	Mon. 325-12-----	46 01 22.34 70 18 45.68	225 12 39 67 19 38	Mon. 325-11----- Mon. 325-13-----	70.20 44.17
Mon. 324-15-----	46 02 08.82 70 18 03.30	267 33 17 23 56 28	Mon. 324-14----- Mon. 324-16-----	35.16 63.30	Mon. 325-13-----	46 01 21.78 70 18 47.57	247 19 37 53 24 36	Mon. 325-12----- Mon. 325-14-----	44.17 46.08
Mon. 324-16-----	46 02 06.95 70 18 04.49	203 56 27 37 14 31	Mon. 324-15----- Mon. 324-17-----	63.30 57.68	Mon. 325-14-----	46 01 20.89 70 18 49.29	233 24 35 73 49 34	Mon. 325-13----- Mon. 325-15-----	46.08 43.46
Mon. 324-17-----	46 02 05.46 70 18 06.11	217 14 30 339 09 28	Mon. 324-16----- Mon. 324-18-----	57.68 85.00	Mon. 325-15-----	46 01 20.50 70 18 51.24	253 49 33 20 52 32	Mon. 325-14----- Mon. 325-16-----	43.46 71.42
Mon. 324-18-----	46 02 02.89 70 18 04.71	159 09 29 36 12 51	Mon. 324-17----- Mon. 324-19-----	85.00 71.13	Mon. 325-16-----	46 01 18.34 70 18 52.42	200 52 31 67 01 00	Mon. 325-15----- Mon. 325-17-----	71.42 32.41
Mon. 324-19-----	46 02 01.03 70 18 06.66	216 12 50 66 54 48	Mon. 324-18----- Mon. 324-20-----	71.13 51.04	Mon. 325-17-----	46 01 17.93 70 18 53.80	247 00 59 51 36 28	Mon. 325-16----- Mon. 325-18-----	32.41 44.12
Mon. 324-20-----	46 02 00.38 70 18 08.85	246 54 46 353 52 26	Mon. 324-19----- Mon. 324-21-----	51.04 37.58	Mon. 325-18-----	46 01 17.04 70 18 55.41	231 36 27 15 10 26	Mon. 325-17----- Mon. 325-19-----	44.12 111.36
Mon. 324-21-----	46 01 59.17 70 18 08.66	173 52 26 4 26 47	Mon. 324-20----- Mon. 324-22-----	37.58 133.84	Mon. 325-19-----	46 01 13.56 70 18 56.77	195 10 25 56 29 24	Mon. 325-18----- Mon. 325-20-----	111.36 43.81
Mon. 324-22-----	46 01 54.85 70 18 09.14	184 26 47 295 04 14	Mon. 324-21----- Mon. 324-23-----	133.84 66.92	Mon. 325-20-----	46 01 12.78 70 18 58.47	236 29 23 41 17 52	Mon. 325-19----- Mon. 325-21-----	43.81 73.57
Mon. 324-23-----	46 01 53.93 70 18 06.32	115 04 16 272 53 55	Mon. 324-22----- Mon. 324-24-----	66.92 79.17	Mon. 325-21-----	46 01 10.99 70 19 00.72	221 17 50 67 43 19	Mon. 325-20----- Mon. 325-22-----	73.57 44.42
Mon. 324-24-----	46 01 53.80 70 18 02.65	92 53 58 303 41 55	Mon. 324-23----- Mon. 324-25-----	79.17 101.08	Mon. 325-22-----	46 01 10.44 70 19 02.63	247 43 18 95 06 18	Mon. 325-21----- Mon. 325-23-----	44.42 44.52
Mon. 324-25-----	46 01 51.98 70 17 58.74	123 41 58 287 33 49	Mon. 324-24----- Mon. 324-26-----	101.08 47.22	Mon. 325-23-----	46 01 10.57 70 19 04.70	275 06 17 45 37 47	Mon. 325-22----- Mon. 325-24-----	44.52 68.10
Mon. 324-26-----	46 01 51.52 70 17 56.64	107 33 51 32 18 00	Mon. 324-25----- Mon. 324-27-----	47.22 48.23	Mon. 325-24-----	46 01 09.03 70 19 06.96	225 37 45 340 44 15	Mon. 325-23----- Mon. 326-----	68.10 17.34
Mon. 324-27-----	46 01 50.20 70 17 57.84	212 17 59 358 27 49	Mon. 324-26----- Mon. 324-28-----	48.23 40.60	Mon. 326-----	46 01 08.50 70 19 06.70	160 44 15 318 11 01	Mon. 325-24----- Mon. 326-1-----	17.34 38.48
Mon. 324-28-----	46 01 48.89 70 17 57.79	178 27 49 39 20 33	Mon. 324-27----- Mon. 324-29-----	40.60 162.77	Mon. 326-1-----	46 01 07.57 70 19 05.50	138 11 02 279 41 00	Mon. 326----- Mon. 326-2-----	38.48 89.66
Mon. 324-29-----	46 01 44.81 70 18 02.59	219 20 30 58 23 32	Mon. 324-28----- Mon. 324-30-----	162.77 48.23	Mon. 326-2-----	46 01 07.08 70 19 01.40	99 41 03 291 19 25	Mon. 326-1----- Mon. 326-3-----	89.66 25.84
Mon. 324-30-----	46 01 43.99 70 18 04.50	238 23 31 81 46 26	Mon. 324-29----- Mon. 324-31-----	48.23 50.84	Mon. 326-3-----	46 01 06.78 70 19 00.28	111 19 26 267 30 24	Mon. 326-2----- Mon. 326-4-----	25.84 37.64
Mon. 324-31-----	46 01 43.76 70 18 06.84	261 46 24 45 42 49	Mon. 324-30----- Mon. 324-32-----	50.84 47.02	Mon. 326-4-----	46 01 06.83 70 18 58.53	87 30 25 313 32 29	Mon. 326-3----- Mon. 326-5-----	37.64 43.10
Mon. 324-32-----	46 01 42.69 70 18 08.40	225 42 48 342 52 37	Mon. 324-31----- Mon. 325-----	47.02 93.54	Mon. 326-5-----	46 01 05.87 70 18 57.08	133 32 30 346 03 59	Mon. 326-4----- Mon. 326-6-----	43.10 99.35
Mon. 325-----	46 01 39.80 70 18 07.12	162 52 38 48 54 39	Mon. 324-32----- Mon. 325-1-----	93.54 62.90	Mon. 326-6-----	46 01 02.74 70 18 55.96	166 04 00 10 07 59	Mon. 326-5----- Mon. 326-7-----	99.35 57.95
Mon. 325-1-----	46 01 38.46 70 18 09.33	228 54 37 77 16 33	Mon. 325----- Mon. 325-2-----	62.90 32.98	Mon. 326-7-----	46 01 00.90 70 18 56.44	190 07 59 313 46 29	Mon. 326-6----- Mon. 326-8-----	57.95 110.03
Mon. 325-2-----	46 01 38.22 70 18 10.82	257 16 32 59 54 28	Mon. 325-1----- Mon. 325-3-----	32.98 85.43	Mon. 326-8-----	46 00 58.43 70 18 52.74	133 46 32 240 46 03	Mon. 326-7----- Mon. 326-9-----	110.03 94.84
Mon. 325-3-----	46 01 36.84 70 18 14.26	239 54 26 47 14 53	Mon. 325-2----- Mon. 325-4-----	85.43 107.98	Mon. 326-9-----	46 00 59.93 70 18 48.90	60 46 06 258 23 07	Mon. 326-8----- Mon. 326-10-----	94.84 59.13



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 326-10.....	46 01 00.32 70 18 46.20	78 23 09 332 48 46	Mon. 326-9..... Mon. 326-11.....	59.13 52.12	Mon. 327-17.....	46 00 11.12 70 18 17.79	132 11 42 271 31 17	Mon. 327-16..... Mon. 327-18.....	56.33 102.16
Mon. 326-11.....	46 00 58.81 70 18 45.10	152 48 47 4 42 54	Mon. 326-10..... Mon. 326-12.....	52.12 87.65	Mon. 327-18.....	46 00 11.03 70 18 13.04	91 31 20 349 11 13	Mon. 327-17..... Mon. 327-19.....	102.16 125.64
Mon. 326-12.....	46 00 55.98 70 18 45.43	184 42 54 277 52 32	Mon. 326-11..... Mon. 326-13.....	87.65 16.21	Mon. 327-19.....	46 00 07.03 70 18 11.95	169 11 14 52 18 42	Mon. 327-18..... Mon. 327-20.....	125.64 53.79
Mon. 326-13.....	46 00 55.91 70 18 44.69	97 52 32 245 04 46	Mon. 326-12..... Mon. 326-14.....	16.21 62.27	Mon. 327-20.....	46 00 05.97 70 18 13.92	232 18 41 74 18 45	Mon. 327-19..... Mon. 327-21.....	53.79 46.58
Mon. 326-14.....	46 00 56.76 70 18 42.06	65 04 48 307 57 02	Mon. 326-13..... Mon. 326-15.....	62.27 29.68	Mon. 327-21.....	46 00 05.56 70 18 16.01	254 18 43 26 41 23	Mon. 327-20..... Mon. 327-22.....	46.58 31.57
Mon. 326-15.....	46 00 56.17 70 18 40.97	127 57 03 341 14 59	Mon. 326-14..... Mon. 326-16.....	29.68 67.85	Mon. 327-22.....	46 00 04.64 70 18 16.67	206 41 23 327 53 57	Mon. 327-21..... Mon. 327-23.....	31.57 83.70
Mon. 326-16.....	46 00 54.09 70 18 39.96	161 15 00 13 02 03	Mon. 326-15..... Mon. 326-17.....	67.85 56.17	Mon. 327-23.....	46 00 02.35 70 18 14.60	147 53 59 19 16 57	Mon. 327-22..... Mon. 327-24.....	83.70 29.56
Mon. 326-17.....	46 00 52.32 70 18 40.55	193 02 02 338 25 47	Mon. 326-16..... Mon. 326-18.....	56.17 31.60	Mon. 327-24.....	46 00 01.44 70 18 15.06	199 16 57 324 37 36	Mon. 327-23..... Mon. 327-25.....	29.56 42.04
Mon. 326-18.....	46 00 51.37 70 18 40.01	158 25 47 345 47 02	Mon. 326-17..... Mon. 326-19.....	31.60 28.01	Mon. 327-25.....	46 00 00.34 70 18 13.92	144 37 37 341 22 34	Mon. 327-24..... Mon. 327-26.....	42.04 117.62
Mon. 326-19.....	46 00 50.49 70 18 39.69	165 47 02 38 21 12	Mon. 326-18..... Mon. 326-20.....	28.01 62.49	Mon. 327-26.....	45 59 56.72 70 18 12.18	161 22 35 317 34 50	Mon. 327-25..... Mon. 327-27.....	117.62 46.84
Mon. 326-20.....	46 00 48.90 70 18 41.49	218 21 10 347 37 38	Mon. 326-19..... Mon. 326-21.....	62.49 90.71	Mon. 327-27.....	45 59 55.60 70 18 10.71	137 34 51 252 00 17	Mon. 327-26..... Mon. 327-28.....	46.84 40.21
Mon. 326-21.....	46 00 46.03 70 18 40.59	167 37 38 48 51 18	Mon. 326-20..... Mon. 326-22.....	90.71 64.20	Mon. 327-28.....	45 59 56.01 70 18 08.93	72 00 18 279 03 02	Mon. 327-27..... Mon. 327-29.....	40.21 61.72
Mon. 326-22.....	46 00 44.66 70 18 42.84	228 51 16 1 03 50	Mon. 326-21..... Mon. 326-23.....	64.20 28.05	Mon. 327-29.....	45 59 55.69 70 18 06.10	99 03 04 248 49 48	Mon. 327-28..... Mon. 327-30.....	61.72 49.78
Mon. 326-23.....	46 00 43.75 70 18 42.86	181 03 50 302 20 49	Mon. 326-22..... Mon. 327.....	28.05 20.55	Mon. 327-30.....	45 59 56.28 70 18 03.94	68 49 50 304 15 58	Mon. 327-29..... Mon. 328.....	49.78 51.35
Mon. 327.....	46 00 43.40 70 18 42.05	122 20 50 299 20 31	Mon. 326-23..... Mon. 327-1.....	20.55 126.91	Mon. 328.....	45 59 55.34 70 18 01.97	124 15 59 310 12 55	Mon. 327-30..... Mon. 328-1.....	51.35 51.47
Mon. 327-1.....	46 00 41.38 70 18 36.91	119 20 35 348 22 22	Mon. 327..... Mon. 327-2.....	126.91 49.30	Mon. 328-1.....	45 59 54.26 70 18 00.15	130 12 56 242 18 26	Mon. 328..... Mon. 328-2.....	51.47 48.77
Mon. 327-2.....	46 00 39.82 70 18 36.45	168 22 22 323 21 33	Mon. 327-1..... Mon. 327-3.....	49.30 83.03	Mon. 328-2.....	45 59 55.00 70 17 58.14	62 18 27 310 07 05	Mon. 328-1..... Mon. 328-3.....	48.77 46.18
Mon. 327-3.....	46 00 37.66 70 18 34.14	143 21 35 286 08 40	Mon. 327-2..... Mon. 327-4.....	83.03 45.86	Mon. 328-3.....	45 59 54.04 70 17 56.50	130 07 06 334 49 32	Mon. 328-2..... Mon. 328-4.....	46.18 34.76
Mon. 327-4.....	46 00 37.25 70 18 32.10	106 08 41 234 21 21	Mon. 327-3..... Mon. 327-5.....	45.86 80.79	Mon. 328-4.....	45 59 53.02 70 17 55.81	154 49 32 299 15 41	Mon. 328-3..... Mon. 328-5.....	34.76 52.39
Mon. 327-5.....	46 00 38.77 70 18 29.05	54 21 23 280 20 15	Mon. 327-4..... Mon. 327-6.....	80.79 42.65	Mon. 328-5.....	45 59 52.19 70 17 53.69	119 15 43 250 19 29	Mon. 328-4..... Mon. 328-6.....	52.39 37.72
Mon. 327-6.....	46 00 38.52 70 18 27.10	100 20 16 326 12 44	Mon. 327-5..... Mon. 327-7.....	42.65 112.01	Mon. 328-6.....	45 59 52.60 70 17 52.04	70 19 30 289 04 17	Mon. 328-5..... Mon. 328-7.....	37.72 48.95
Mon. 327-7.....	46 00 35.51 70 18 24.20	146 12 46 345 12 56	Mon. 327-6..... Mon. 327-8.....	112.01 144.75	Mon. 328-7.....	45 59 52.08 70 17 49.89	109 04 19 297 57 14	Mon. 328-6..... Mon. 328-8.....	48.95 48.35
Mon. 327-8.....	46 00 30.98 70 18 22.48	165 12 57 348 21 36	Mon. 327-7..... Mon. 327-9.....	144.75 190.95	Mon. 328-8.....	45 59 51.35 70 17 47.90	117 57 15 309 28 40	Mon. 328-7..... Mon. 328-9.....	48.35 54.47
Mon. 327-9.....	46 00 24.92 70 18 20.69	168 21 37 9 03 50	Mon. 327-8..... Mon. 327-10.....	190.95 96.46	Mon. 328-9.....	45 59 50.22 70 17 45.95	129 28 41 339 28 25	Mon. 328-8..... Mon. 328-10.....	54.47 22.51
Mon. 327-10.....	46 00 21.83 70 18 21.40	189 03 49 47 23 44	Mon. 327-9..... Mon. 327-11.....	96.46 62.89	Mon. 328-10.....	45 59 49.54 70 17 45.68	159 28 25 271 26 28	Mon. 328-9..... Mon. 328-11.....	22.51 44.75
Mon. 327-11.....	46 00 20.46 70 18 23.55	227 23 42 341 08 25	Mon. 327-10..... Mon. 327-12.....	62.89 50.24	Mon. 328-11.....	45 59 49.50 70 17 43.50	91 26 30 279 28 46	Mon. 328-10..... Mon. 328-12.....	44.75 65.31
Mon. 327-12.....	46 00 18.92 70 18 22.80	161 08 26 349 27 45	Mon. 327-11..... Mon. 327-13.....	50.24 136.29	Mon. 328-12.....	45 59 49.16 70 17 40.51	99 28 48 241 26 11	Mon. 328-11..... Mon. 328-13.....	65.31 95.11
Mon. 327-13.....	46 00 14.58 70 18 21.64	169 27 46 15 17 52	Mon. 327-12..... Mon. 327-14.....	136.29 41.62	Mon. 328-13.....	45 59 50.63 70 17 36.63	61 26 14 265 10 03	Mon. 328-12..... Mon. 328-14.....	95.11 76.24
Mon. 327-14.....	46 00 13.28 70 18 22.15	195 17 52 312 29 34	Mon. 327-13..... Mon. 327-15.....	41.62 44.73	Mon. 328-14.....	45 59 50.84 70 17 33.10	85 10 06 307 29 02	Mon. 328-13..... Mon. 328-15.....	76.24 46.64
Mon. 327-15.....	46 00 12.30 70 18 20.61	132 29 35 265 41 28	Mon. 327-14..... Mon. 327-16.....	44.73 19.11	Mon. 328-15.....	45 59 49.92 70 17 31.38	127 29 03 52 22 19	Mon. 328-14..... Mon. 328-16.....	46.64 41.64
Mon. 327-16.....	46 00 12.34 70 18 19.73	85 41 29 312 11 41	Mon. 327-15..... Mon. 327-17.....	19.11 56.33	Mon. 328-16.....	45 59 49.10 70 17 32.91	232 22 18 357 58 15	Mon. 328-15..... Mon. 328-17.....	41.64 36.37

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 328-17-----	45 59 47.92 70 17 32.85	177 58 15 325 03 36	Mon. 328-16----- Mon. 328-18-----	36.37 66.28	Mon. 329-11-----	45 59 26.12 70 17 25.63	234 48 22 35 45 10	Mon. 329-10----- Mon. 329-12-----	111.97 61.76
Mon. 328-18-----	45 59 46.16 70 17 31.08	145 03 37 291 50 36	Mon. 328-17----- Mon. 328-19-----	66.28 51.19	Mon. 329-12-----	45 59 24.50 70 17 27.31	215 45 09 56 53 14	Mon. 329-11----- Mon. 329-13-----	61.76 66.84
Mon. 328-19-----	45 59 45.54 70 17 28.88	111 50 38 267 30 56	Mon. 328-18----- Mon. 328-20-----	51.19 30.89	Mon. 329-13-----	45 59 23.32 70 17 29.91	236 53 12 22 13 59	Mon. 329-12----- Mon. 329-14-----	66.84 128.88
Mon. 328-20-----	45 59 45.58 70 17 27.44	87 30 57 13 43 21	Mon. 328-19----- Mon. 328-21-----	30.89 55.91	Mon. 329-14-----	45 59 19.45 70 17 32.17	202 13 57 61 27 39	Mon. 329-13----- Mon. 329-15-----	128.88 34.80
Mon. 328-21-----	45 59 43.83 70 17 28.06	193 43 21 67 25 57	Mon. 328-20----- Mon. 328-22-----	55.91 45.25	Mon. 329-15-----	45 59 18.91 70 17 33.59	241 27 38 26 50 37	Mon. 329-14----- Mon. 329-16-----	34.80 39.22
Mon. 328-22-----	45 59 43.26 70 17 30.00	247 25 56 3 58 02	Mon. 328-21----- Mon. 328-23-----	45.25 33.40	Mon. 329-16-----	45 59 17.78 70 17 34.42	206 50 36 59 13 00	Mon. 329-15----- Mon. 329-17-----	39.22 59.22
Mon. 328-23-----	45 59 42.18 70 17 30.11	183 58 02 317 03 32	Mon. 328-22----- Mon. 328-24-----	33.40 34.32	Mon. 329-17-----	45 59 16.80 70 17 36.78	239 12 58 33 22 33	Mon. 329-16----- Mon. 329-18-----	59.22 96.77
Mon. 328-24-----	45 59 41.37 70 17 29.02	137 03 33 250 44 57	Mon. 328-23----- Mon. 328-25-----	34.32 31.09	Mon. 329-18-----	45 59 14.18 70 17 39.26	213 22 31 46 21 07	Mon. 329-17----- Mon. 329-19-----	96.77 54.34
Mon. 328-25-----	45 59 41.70 70 17 27.66	70 44 58 248 37 29	Mon. 328-24----- Mon. 328-26-----	31.09 141.72	Mon. 329-19-----	45 59 12.97 70 17 41.08	226 21 06 28 36 17	Mon. 329-18----- Mon. 329-20-----	54.34 85.28
Mon. 328-26-----	45 59 43.38 70 17 21.52	68 37 33 339 11 13	Mon. 328-25----- Mon. 328-27-----	141.72 68.69	Mon. 329-20-----	45 59 10.54 70 17 42.98	208 36 16 64 32 51	Mon. 329-19----- Mon. 329-21-----	85.28 73.28
Mon. 328-27-----	45 59 41.30 70 17 20.39	159 11 14 47 26 37	Mon. 328-26----- Mon. 328-28-----	68.69 56.13	Mon. 329-21-----	45 59 09.52 70 17 46.05	244 32 49 107 12 43	Mon. 329-20----- Mon. 329-22-----	73.28 67.14
Mon. 328-28-----	45 59 40.07 70 17 22.31	227 26 36 329 46 34	Mon. 328-27----- Mon. 328-29-----	56.13 46.58	Mon. 329-22-----	45 59 10.16 70 17 49.03	287 12 41 75 17 10	Mon. 329-21----- Mon. 329-23-----	67.14 71.95
Mon. 328-29-----	45 59 38.76 70 17 21.22	149 46 35 258 35 28	Mon. 328-28----- Mon. 328-30-----	46.58 72.03	Mon. 329-23-----	45 59 09.57 70 17 52.27	255 17 08 83 17 55	Mon. 329-22----- Mon. 329-24-----	71.95 126.79
Mon. 328-30-----	45 59 39.22 70 17 17.94	78 35 30 241 07 12	Mon. 328-29----- Mon. 328-31-----	72.03 51.57	Mon. 329-24-----	45 59 09.09 70 17 58.12	263 17 51 100 49 09	Mon. 329-23----- Mon. 329-25-----	126.79 66.92
Mon. 328-31-----	45 59 40.03 70 17 15.84	61 07 14 263 01 09	Mon. 328-30----- Mon. 328-32-----	51.57 47.57	Mon. 329-25-----	45 59 09.50 70 18 01.17	280 49 07 33 25 18	Mon. 329-24----- Mon. 329-26-----	66.92 62.78
Mon. 328-32-----	45 59 40.22 70 17 13.65	83 01 11 224 52 37	Mon. 328-31----- Mon. 328-33-----	47.57 24.48	Mon. 329-26-----	45 59 07.80 70 18 02.78	213 25 17 74 03 22	Mon. 329-25----- Mon. 329-27-----	62.78 34.82
Mon. 328-33-----	45 59 40.78 70 17 12.84	44 52 37 237 46 16	Mon. 328-32----- Mon. 328-34-----	24.48 125.46	Mon. 329-27-----	45 59 07.49 70 18 04.33	254 03 21 44 32 51	Mon. 329-26----- Mon. 329-28-----	34.82 85.96
Mon. 328-34-----	45 59 42.95 70 17 07.91	57 46 19 232 25 59	Mon. 328-33----- Mon. 328-35-----	125.46 26.93	Mon. 329-28-----	45 59 05.51 70 18 07.13	224 32 49 19 46 48	Mon. 329-27----- Mon. 329-29-----	85.96 49.28
Mon. 328-35-----	45 59 43.48 70 17 06.92	52 26 00 250 26 17	Mon. 328-34----- Mon. 328-36-----	26.93 58.24	Mon. 329-29-----	45 59 04.01 70 18 07.91	199 46 47 59 02 52	Mon. 329-28----- Mon. 329-30-----	49.28 104.92
Mon. 328-36-----	45 59 44.11 70 17 04.37	70 26 19 11 58 37	Mon. 328-35----- Mon. 329-----	58.24 11.41	Mon. 329-30-----	45 59 02.26 70 18 12.09	239 02 49 105 54 25	Mon. 329-29----- Mon. 329-31-----	104.92 47.67
Mon. 329-----	45 59 43.74 70 17 04.45	191 58 37 40 42 48	Mon. 328-36----- Mon. 329-1-----	11.41 72.33	Mon. 329-31-----	45 59 02.68 70 18 14.22	285 54 23 56 07 22	Mon. 329-30----- Mon. 329-32-----	47.67 92.03
Mon. 329-1-----	45 59 41.97 70 17 06.67	220 42 46 52 06 33	Mon. 329----- Mon. 329-2-----	72.33 94.45	Mon. 329-32-----	45 59 01.02 70 18 17.77	236 07 20 91 46 25	Mon. 329-31----- Mon. 329-33-----	92.03 54.82
Mon. 329-2-----	45 59 40.09 70 17 10.13	232 06 31 30 18 07	Mon. 329-1----- Mon. 329-3-----	94.45 39.64	Mon. 329-33-----	45 59 01.08 70 18 20.32	271 46 23 50 12 04	Mon. 329-32----- Mon. 329-34-----	54.82 78.97
Mon. 329-3-----	45 59 38.98 70 17 11.0 6	210 18 06 55 31 29	Mon. 329-2----- Mon. 329-4-----	39.64 115.99	Mon. 329-34-----	45 58 59.44 70 18 23.13	230 12 02 64 17 08	Mon. 329-33----- Mon. 329-35-----	78.97 99.91
Mon. 329-4-----	45 59 36.86 70 17 15.51	235 31 26 10 16 08	Mon. 329-3----- Mon. 329-5-----	115.99 56.43	Mon. 329-35-----	45 58 58.04 70 18 27.32	244 17 05 27 48 58	Mon. 329-34----- Mon. 329-36-----	99.91 112.21
Mon. 329-5-----	45 59 35.06 70 17 15.97	190 16 08 307 02 07	Mon. 329-4----- Mon. 329-6-----	56.43 86.64	Mon. 329-36-----	45 58 54.82 70 18 29.75	207 48 56 359 47 49	Mon. 329-35----- Mon. 329-37-----	112.21 67.94
Mon. 329-6-----	45 59 33.37 70 17 12.76	127 02 09 41 02 27	Mon. 329-5----- Mon. 329-7-----	86.64 30.80	Mon. 329-37-----	45 58 52.62 70 18 29.74	179 47 49 47 49 48	Mon. 329-36----- Mon. 329-38-----	67.94 38.25
Mon. 329-7-----	45 59 32.62 70 17 13.70	221 02 26 47 42 32	Mon. 329-6----- Mon. 329-8-----	30.80 85.74	Mon. 329-38-----	45 58 51.79 70 18 31.05	227 49 47 13 19 04	Mon. 329-37----- Mon. 329-39-----	38.25 34.16
Mon. 329-8-----	45 59 30.75 70 17 16.65	227 42 30 59 21 35	Mon. 329-7----- Mon. 329-9-----	85.74 108.98	Mon. 329-39-----	45 58 50.71 70 18 31.42	193 19 04 96 38 09	Mon. 329-38----- Mon. 329-40-----	34.16 49.48
Mon. 329-9-----	45 59 28.95 70 17 21.00	239 21 32 19 29 56	Mon. 329-8----- Mon. 329-10-----	108.98 24.12	Mon. 329-40-----	45 58 50.90 70 18 33.70	276 38 07 18 13 49	Mon. 329-39----- Mon. 329-41-----	49.48 36.55
Mon. 329-10-----	45 59 28.21 70 17 21.38	199 29 56 54 48 25	Mon. 329-9----- Mon. 329-11-----	24.12 111.97	Mon. 329-41-----	45 58 49.77 70 18 34.23	198 13 48 319 09 11	Mon. 329-40----- Mon. 329-42-----	36.55 52.75

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 329-42.....	45 58 48.48 70 18 32.63	139 09 12 4 46 05	Mon. 329-41..... Mon. 330.....	52.75 34.48	Mon. 330-30.....	45 57 52.48 70 18 57.32	200 39 04 21 17 24	Mon. 330-29..... Mon. 330-31.....	96.39 40.24
Mon. 330.....	45 58 47.37 70 18 32.76	184 46 05 354 49 02	Mon. 329-42..... Mon. 330-1.....	34.48 10.73	Mon. 330-31.....	45 57 51.26 70 18 58.00	201 17 23 63 04 37	Mon. 330-30..... Mon. 330-32.....	40.24 37.63
Mon. 330-1.....	45 58 47.02 70 18 32.72	174 49 02 319 31 11	Mon. 330..... Mon. 330-2.....	10.73 40.40	Mon. 330-32.....	45 57 50.71 70 18 59.56	243 04 36 0 33 37	Mon. 330-31..... Mon. 331.....	37.63 38.13
Mon. 330-2.....	45 58 46.03 70 18 31.50	139 31 12 293 28 33	Mon. 330-1..... Mon. 330-3.....	40.40 38.17	Mon. 331.....	45 57 49.48 70 18 59.57	180 33 37 354 50 03	Mon. 330-32..... Mon. 331-1.....	38.13 73.43
Mon. 330-3.....	45 58 45.53 70 18 29.87	113 28 34 332 00 44	Mon. 330-2..... Mon. 330-4.....	38.17 109.73	Mon. 331-1.....	45 57 47.11 70 18 59.27	174 50 03 275 16 53	Mon. 331..... Mon. 331-2.....	73.43 53.25
Mon. 330-4.....	45 58 42.40 70 18 27.48	152 00 46 56 09 06	Mon. 330-3..... Mon. 330-5.....	109.73 101.57	Mon. 331-2.....	45 57 46.95 70 18 56.80	95 16 55 267 32 57	Mon. 331-1..... Mon. 331-3.....	53.25 145.61
Mon. 330-5.....	45 58 40.56 70 18 31.40	236 09 03 60 44 28	Mon. 330-4..... Mon. 330-6.....	101.57 121.71	Mon. 331-3.....	45 57 47.15 70 18 50.05	87 33 02 329 02 24	Mon. 331-2..... Mon. 331-4.....	145.61 112.37
Mon. 330-6.....	45 58 38.64 70 18 36.33	240 44 24 70 46 19	Mon. 330-5..... Mon. 330-7.....	121.71 37.07	Mon. 331-4.....	45 57 44.03 70 18 47.36	149 02 26 252 19 50	Mon. 331-3..... Mon. 331-5.....	112.37 137.00
Mon. 330-7.....	45 58 38.24 70 18 37.96	250 46 18 23 31 18	Mon. 330-6..... Mon. 330-8.....	37.07 17.89	Mon. 331-5.....	45 57 45.38 70 18 41.30	72 19 54 241 00 07	Mon. 331-4..... Mon. 331-6.....	137.00 61.82
Mon. 330-8.....	45 58 37.71 70 18 38.29	203 31 18 336 43 48	Mon. 330-7..... Mon. 330-9.....	17.89 43.66	Mon. 331-6.....	45 57 46.35 70 18 38.79	61 00 09 269 56 17	Mon. 331-5..... Mon. 331-7.....	61.82 63.11
Mon. 330-9.....	45 58 36.41 70 18 37.49	156 43 49 14 59 37	Mon. 330-8..... Mon. 330-10.....	43.66 98.75	Mon. 331-7.....	45 57 46.35 70 18 35.86	89 56 19 211 15 22	Mon. 331-6..... Mon. 331-8.....	63.11 50.07
Mon. 330-10.....	45 58 33.32 70 18 38.68	194 59 36 33 04 41	Mon. 330-9..... Mon. 330-11.....	98.75 50.86	Mon. 331-8.....	45 57 47.74 70 18 34.65	31 15 23 226 07 50	Mon. 331-7..... Mon. 331-9.....	50.07 70.23
Mon. 330-11.....	45 58 31.94 70 18 39.96	213 04 40 64 36 50	Mon. 330-10..... Mon. 330-12.....	50.86 84.86	Mon. 331-9.....	45 57 49.31 70 18 32.30	46 07 52 217 02 14	Mon. 331-8..... Mon. 331-10.....	70.23 23.54
Mon. 330-12.....	45 58 30.76 70 18 43.53	244 36 47 27 33 08	Mon. 330-11..... Mon. 330-13.....	84.86 74.81	Mon. 331-10.....	45 57 49.92 70 18 31.64	37 02 14 252 15 06	Mon. 331-9..... Mon. 331-11.....	23.54 80.39
Mon. 330-13.....	45 58 28.62 70 18 45.13	207 33 07 0 22 28	Mon. 330-12..... Mon. 330-14.....	74.81 62.82	Mon. 331-11.....	45 57 50.72 70 18 28.09	72 15 09 221 16 56	Mon. 331-10..... Mon. 331-12.....	80.39 55.74
Mon. 330-14.....	45 58 26.58 70 18 45.15	180 22 28 300 20 36	Mon. 330-13..... Mon. 330-15.....	62.82 27.74	Mon. 331-12.....	45 57 52.07 70 18 26.38	41 16 57 259 32 51	Mon. 331-11..... Mon. 331-13.....	55.74 29.01
Mon. 330-15.....	45 58 26.13 70 18 44.04	120 20 37 269 40 45	Mon. 330-14..... Mon. 330-16.....	27.74 46.43	Mon. 331-13.....	45 57 52.24 70 18 25.05	79 32 52 242 03 52	Mon. 331-12..... Mon. 331-14.....	29.01 132.11
Mon. 330-16.....	45 58 26.14 70 18 41.88	89 40 47 307 44 43	Mon. 330-15..... Mon. 330-17.....	46.43 43.84	Mon. 331-14.....	45 57 54.25 70 18 19.63	62 03 56 275 46 40	Mon. 331-13..... Mon. 331-15.....	132.11 27.44
Mon. 330-17.....	45 58 25.27 70 18 40.27	127 44 44 1 06 46	Mon. 330-16..... Mon. 330-18.....	43.84 52.10	Mon. 331-15.....	45 57 54.16 70 18 18.36	95 46 41 276 51 14	Mon. 331-14..... Mon. 331-16.....	27.44 54.03
Mon. 330-18.....	45 58 23.58 70 18 40.32	181 06 46 336 56 17	Mon. 330-17..... Mon. 330-19.....	52.10 70.16	Mon. 331-16.....	45 57 53.95 70 18 15.87	96 51 16 343 41 25	Mon. 331-15..... Mon. 331-17.....	54.03 34.50
Mon. 330-19.....	45 58 21.49 70 18 39.04	156 56 18 54 39 49	Mon. 330-18..... Mon. 330-20.....	70.16 94.73	Mon. 331-17.....	45 57 52.88 70 18 15.42	163 41 25 14 10 52	Mon. 331-16..... Mon. 331-18.....	34.50 36.27
Mon. 330-20.....	45 58 19.71 70 18 42.63	234 39 46 359 28 34	Mon. 330-19..... Mon. 330-21.....	94.73 101.15	Mon. 331-18.....	45 57 51.74 70 18 15.84	194 10 52 298 53 25	Mon. 331-17..... Mon. 331-19.....	36.27 43.79
Mon. 330-21.....	45 58 16.44 70 18 42.59	179 28 34 30 42 33	Mon. 330-20..... Mon. 330-22.....	101.15 119.91	Mon. 331-19.....	45 57 51.05 70 18 14.05	118 53 26 247 32 54	Mon. 331-18..... Mon. 331-20.....	43.79 27.80
Mon. 330-22.....	45 58 13.10 70 18 45.44	210 42 31 15 50 52	Mon. 330-21..... Mon. 330-23.....	119.91 127.10	Mon. 331-20.....	45 57 51.40 70 18 12.86	67 32 55 291 54 05	Mon. 331-19..... Mon. 331-21.....	27.80 58.12
Mon. 330-23.....	45 58 09.14 70 18 47.05	195 50 51 342 47 42	Mon. 330-22..... Mon. 330-24.....	127.10 104.13	Mon. 331-21.....	45 57 50.69 70 18 10.36	111 54 07 246 43 06	Mon. 331-20..... Mon. 331-22.....	58.12 64.66
Mon. 330-24.....	45 58 05.92 70 18 45.62	162 47 43 359 13 38	Mon. 330-23..... Mon. 330-25.....	104.13 64.75	Mon. 331-22.....	45 57 51.52 70 18 07.60	66 43 08 262 40 02	Mon. 331-21..... Mon. 331-23.....	64.66 64.49
Mon. 330-25.....	45 58 03.82 70 18 45.58	179 13 38 345 06 45	Mon. 330-24..... Mon. 330-26.....	64.75 146.53	Mon. 331-23.....	45 57 51.79 70 18 04.63	82 40 04 316 08 46	Mon. 331-22..... Mon. 331-24.....	64.49 36.53
Mon. 330-26.....	45 57 59.23 70 18 43.83	165 06 46 30 38 51	Mon. 330-25..... Mon. 330-27.....	146.53 106.82	Mon. 331-24.....	45 57 50.94 70 18 03.46	136 08 47 317 08 30	Mon. 331-23..... Mon. 331-25.....	36.53 71.03
Mon. 330-27.....	45 57 56.26 70 18 46.35	210 38 49 68 22 29	Mon. 330-26..... Mon. 330-28.....	106.82 79.26	Mon. 331-25.....	45 57 49.25 70 18 01.21	137 08 32 273 24 40	Mon. 331-24..... Mon. 331-26.....	71.03 61.50
Mon. 330-28.....	45 57 55.31 70 18 49.78	248 22 27 43 10 54	Mon. 330-27..... Mon. 330-29.....	79.26 98.35	Mon. 331-26.....	45 57 49.13 70 17 58.36	93 24 42 328 57 21	Mon. 331-25..... Mon. 331-27.....	61.50 85.34
Mon. 330-29.....	45 57 52.99 70 18 52.90	223 10 52 80 39 07	Mon. 330-28..... Mon. 330-30.....	98.35 96.39	Mon. 331-27.....	45 57 46.76 70 17 56.32	148 57 22 239 18 38	Mon. 331-26..... Mon. 331-28.....	85.34 64.66



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 331-28...	45 57 47.83 70 17 53.74	59 18 40 243 56 14	Mon. 331-27..... Mon. 331-29.....	64.66 73.10	Mon. 332-29.....	45 57 56.34 70 16 30.38	129 44 09 335 48 29	Mon. 332-28..... Mon. 332-30.....	27.88 166.63
Mon. 331-29.....	45 57 48.87 70 17 50.68	63 56 16 295 38 39	Mon. 331-28..... Mon. 332.....	73.10 120.55	Mon. 332-30.....	45 57 51.42 70 16 27.20	155 48 31 253 56 45	Mon. 332-29..... Mon. 332-31.....	166.63 75.64
Mon. 332.....	45 57 47.18 70 17 45.64	115 38 42 293 19 01	Mon. 331-29..... Mon. 332-1.....	120.55 20.01	Mon. 332-31.....	45 57 52.10 70 16 23.83	73 56 47 38 47 55	Mon. 332-30..... Mon. 332-32.....	75.64 43.08
Mon. 332-1.....	45 57 46.93 70 17 44.78	113 19 02 269 25 37	Mon. 332..... Mon. 332-2.....	20.01 69.88	Mon. 332-32.....	45 57 51.01 70 16 25.08	218 47 54 65 20 02	Mon. 332-31..... Mon. 332-33.....	43.08 162.61
Mon. 332-2.....	45 57 46.95 70 17 41.52	89 25 39 245 38 32	Mon. 332-1..... Mon. 332-3.....	69.88 124.67	Mon. 332-33.....	45 57 48.81 70 16 31.94	245 19 57 2 05 17	Mon. 332-32..... Mon. 332-34.....	162.61 90.56
Mon. 332-3.....	45 57 48.61 70 17 36.25	65 38 36 274 45 34	Mon. 332-2..... Mon. 332-4.....	124.67 99.09	Mon. 332-34.....	45 57 45.88 70 16 32.10	182 05 17 348 17 08	Mon. 332-33..... Mon. 332-35.....	90.56 72.03
Mon. 332-4.....	45 57 48.35 70 17 31.66	94 45 37 247 54 41	Mon. 332-3..... Mon. 332-5.....	99.09 70.98	Mon. 332-35.....	45 57 43.60 70 16 31.42	168 17 08 340 33 47	Mon. 332-34..... Mon. 332-36.....	72.03 74.21
Mon. 332-5.....	45 57 49.21 70 17 28.61	67 54 43 289 03 47	Mon. 332-4..... Mon. 332-6.....	70.98 128.58	Mon. 332-36.....	45 57 41.33 70 16 30.27	160 33 48 269 36 08	Mon. 332-35..... Mon. 332-37.....	74.21 43.50
Mon. 332-6.....	45 57 47.85 70 17 22.97	109 03 51 256 42 42	Mon. 332-5..... Mon. 332-7.....	128.58 32.21	Mon. 332-37.....	45 57 41.34 70 16 28.25	89 36 10 318 37 24	Mon. 332-36..... Mon. 332-38.....	43.50 44.03
Mon. 332-7.....	45 57 48.09 70 17 21.51	76 42 43 190 24 33	Mon. 332-6..... Mon. 332-8.....	32.21 46.52	Mon. 332-38.....	45 57 40.27 70 16 26.90	138 37 25 259 26 51	Mon. 332-37..... Mon. 332-39.....	44.03 40.42
Mon. 332-8.....	45 57 49.57 70 17 21.12	10 24 33 218 18 42	Mon. 332-7..... Mon. 332-9.....	46.52 48.54	Mon. 332-39.....	45 57 40.51 70 16 25.06	79 26 52 250 45 30	Mon. 332-38..... Mon. 332-40.....	40.42 37.61
Mon. 332-9.....	45 57 50.81 70 17 19.72	38 18 43 244 05 51	Mon. 332-8..... Mon. 332-10.....	48.54 136.39	Mon. 332-40.....	45 57 40.91 70 16 23.41	70 45 31 274 02 02	Mon. 332-39..... Mon. 332-41.....	37.61 56.09
Mon. 332-10.....	45 57 52.74 70 17 14.02	64 05 55 275 48 45	Mon. 332-9..... Mon. 332-11.....	136.39 127.86	Mon. 332-41.....	45 57 40.78 70 16 20.81	94 02 04 242 35 17	Mon. 332-40..... Mon. 332-42.....	56.09 49.93
Mon. 332-11.....	45 57 52.32 70 17 08.12	95 48 49 263 54 32	Mon. 332-10..... Mon. 332-12.....	127.86 59.63	Mon. 332-42.....	45 57 41.52 70 16 18.75	62 35 19 227 48 14	Mon. 332-41..... Mon. 332-43.....	49.93 122.50
Mon. 332-12.....	45 57 52.52 70 17 05.36	83 54 34 320 53 29	Mon. 332-11..... Mon. 332-13.....	59.63 102.50	Mon. 332-43.....	45 57 44.19 70 16 14.54	47 48 17 265 23 06	Mon. 332-42..... Mon. 333.....	122.50 88.34
Mon. 332-13.....	45 57 49.95 70 17 02.36	140 53 31 257 52 55	Mon. 332-12..... Mon. 332-14.....	102.50 61.17	Mon. 333.....	45 57 44.42 70 16 10.45	85 23 10 188 33 11	Mon. 332-43..... Mon. 333-1.....	88.34 2.45
Mon. 332-14.....	45 57 50.36 70 16 59.58	77 52 57 220 09 27	Mon. 332-13..... Mon. 332-15.....	61.17 56.43	Mon. 333-1.....	45 57 44.50 70 16 10.44	8 33 11 236 15 36	Mon. 333..... Mon. 333-2.....	2.45 94.65
Mon. 332-15.....	45 57 51.76 70 16 57.89	40 09 28 291 57 10	Mon. 332-14..... Mon. 332-16.....	56.43 72.91	Mon. 333-2.....	45 57 46.20 70 16 06.78	56 15 39 258 28 27	Mon. 333-1..... Mon. 333-3.....	94.65 35.97
Mon. 332-16.....	45 57 50.88 70 16 54.75	111 57 12 219 17 35	Mon. 332-15..... Mon. 332-17.....	72.91 136.11	Mon. 333-3.....	45 57 46.43 70 16 05.14	78 28 28 221 33 11	Mon. 333-2..... Mon. 333-4.....	35.97 208.00
Mon. 332-17.....	45 57 54.29 70 16 50.75	39 17 38 184 02 07	Mon. 332-16..... Mon. 332-18.....	136.11 57.05	Mon. 333-4.....	45 57 51.48 70 15 58.74	41 33 16 315 57 04	Mon. 333-3..... Mon. 333-5.....	208.00 28.60
Mon. 332-18.....	45 57 56.13 70 16 50.56	4 02 07 236 52 30	Mon. 332-17..... Mon. 332-19.....	57.05 65.09	Mon. 333-5.....	45 57 50.81 70 15 57.81	135 57 05 349 18 29	Mon. 333-4..... Mon. 333-6.....	28.60 78.73
Mon. 332-19.....	45 57 57.28 70 16 48.03	56 52 32 268 45 43	Mon. 332-18..... Mon. 332-20.....	65.09 37.27	Mon. 333-6.....	45 57 48.30 70 15 57.13	169 18 29 6 58 19	Mon. 333-5..... Mon. 333-7.....	78.73 57.39
Mon. 332-20.....	45 57 57.31 70 16 46.30	88 45 44 231 28 12	Mon. 332-19..... Mon. 332-21.....	37.27 45.41	Mon. 333-7.....	45 57 46.46 70 15 57.46	186 58 19 275 27 57	Mon. 333-6..... Mon. 333-8.....	57.39 77.98
Mon. 332-21.....	45 57 58.23 70 16 44.65	51 28 13 240 31 05	Mon. 332-20..... Mon. 332-22.....	45.41 97.07	Mon. 333-8.....	45 57 46.22 70 15 53.85	95 28 00 0 44 09	Mon. 333-7..... Mon. 333-9.....	77.98 55.02
Mon. 332-22.....	45 57 59.77 70 16 40.73	60 31 08 199 24 12	Mon. 332-21..... Mon. 332-23.....	97.07 88.42	Mon. 333-9.....	45 57 44.44 70 15 53.89	180 44 09 306 11 19	Mon. 333-8..... Mon. 333-10.....	55.02 45.41
Mon. 332-23.....	45 58 02.48 70 16 39.36	19 24 13 300 20 47	Mon. 332-22..... Mon. 332-24.....	88.42 74.20	Mon. 333-10.....	45 57 43.57 70 15 52.18	126 11 20 270 45 48	Mon. 333-9..... Mon. 333-11.....	45.41 44.11
Mon. 332-24.....	45 58 01.26 70 16 36.39	120 20 49 269 55 52	Mon. 332-23..... Mon. 332-25.....	74.20 40.69	Mon. 333-11.....	45 57 43.55 70 15 50.14	90 45 49 318 43 06	Mon. 333-10..... Mon. 333-12.....	44.11 40.17
Mon. 332-25.....	45 58 01.26 70 16 34.50	89 55 53 338 22 44	Mon. 332-24..... Mon. 332-26.....	40.69 47.17	Mon. 333-12.....	45 57 42.57 70 15 48.90	138 43 07 340 32 55	Mon. 333-11..... Mon. 333-13.....	40.17 101.86
Mon. 332-26.....	45 57 59.84 70 16 33.69	158 22 45 306 43 24	Mon. 332-25..... Mon. 332-27.....	47.17 65.33	Mon. 333-13.....	45 57 39.46 70 15 47.33	160 32 56 319 01 27	Mon. 333-12..... Mon. 333-14.....	101.86 129.57
Mon. 332-27.....	45 57 58.58 70 16 31.28	126 43 26 2 34 47	Mon. 332-26..... Mon. 332-28.....	65.33 51.22	Mon. 333-14.....	45 57 36.29 70 15 43.38	139 01 30 281 01 45	Mon. 333-13..... Mon. 333-15.....	129.57 59.52
Mon. 332-28.....	45 57 56.92 70 16 31.37	182 34 47 309 44 08	Mon. 332-27..... Mon. 332-29.....	51.22 27.88	Mon. 333-15.....	45 57 35.92 70 15 40.67	101 01 47 302 32 27	Mon. 333-14..... Mon. 333-16.....	59.52 46.46

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 333-16	45 57 35.11 70 15 38.85	122 32 28 288 05 26	Mon. 333-15	46.46 97.05	Mon. 334-17	45 57 15.48 70 15 08.67	216 47 20 284 26 11	Mon. 334-16	51.80 29.96
Mon. 333-17	45 57 34.14 70 15 34.57	108 05 29 247 19 40	Mon. 333-16	97.05	Mon. 334-18	45 57 15.24 70 15 07.32	104 26 12 336 57 40	Mon. 334-17	29.96
Mon. 333-18	45 57 34.40 70 15 33.65	67 19 41 314 03 58	Mon. 333-17	21.36	Mon. 334-19	45 57 11.51 70 15 05.05	156 57 42 303 39 58	Mon. 334-18	124.99
Mon. 333-19	45 57 32.66 70 15 31.07	134 04 00 45 45 25	Mon. 333-18	77.48	Mon. 334-20	45 57 09.62 70 15 00.97	123 40 01 240 03 53	Mon. 334-19	105.53
Mon. 333-20	45 57 27.67 70 15 37.38	225 45 20 13 00 45	Mon. 333-19	220.86	Mon. 334-21	45 57 09.96 70 15 00.12	60 03 54 282 58 16	Mon. 334-20	21.13
Mon. 333-21	45 57 26.82 70 15 38.70	193 00 45 341 44 47	Mon. 333-20	26.85	Mon. 334-22	45 57 09.80 70 14 59.11	102 58 17 326 03 39	Mon. 334-21	22.38
Mon. 333-22	45 57 24.03 70 15 37.35	161 44 48 355 41 45	Mon. 333-21	90.75	Mon. 334-23	45 57 09.10 70 14 58.44	146 03 39 24 31 49	Mon. 334-22	25.78
Mon. 333-23	45 57 22.91 70 15 37.26	175 41 45 336 15 55	Mon. 333-22	34.62	Mon. 334-24	45 57 07.84 70 14 59.27	204 31 48 337 33 17	Mon. 334-23	42.85
Mon. 333-24	45 57 20.56 70 15 35.78	156 15 56 305 00 25	Mon. 333-23	79.21	Mon. 334-25	45 57 06.61 70 14 58.54	157 33 18 300 16 05	Mon. 334-24	57.49
Mon. 333-25	45 57 19.30 70 15 33.18	125 00 27 2 40 27	Mon. 333-24	68.14	Mon. 334-26	45 57 05.67 70 14 56.23	120 16 07 342 07 36	Mon. 334-25	62.63
Mon. 333-26	45 57 16.86 70 15 33.35	182 40 27 50 55 34	Mon. 333-25	75.42	Mon. 334-27	45 57 03.74 70 14 55.34	162 07 37 24 12 00	Mon. 334-26	84.86
Mon. 333-27	45 57 13.26 70 15 39.70	230 55 29 5 14 24	Mon. 333-26	176.30	Mon. 334-28	45 57 01.23 70 14 56.96	204 11 59 329 14 22	Mon. 334-27	79.13
Mon. 333-28	45 57 12.17 70 15 39.84	185 14 24 36 53 20	Mon. 333-27	33.76	Mon. 334-29	45 56 59.03 70 14 55.08	149 14 23 301 38 11	Mon. 334-28	59.97
Mon. 333-29	45 57 10.80 70 15 41.31	216 53 19 343 26 45	Mon. 333-28	52.71	Mon. 334-30	45 56 58.01 70 14 52.71	121 38 13 267 40 37	Mon. 334-29	44.27
Mon. 334	45 57 09.09 70 15 40.58	163 26 45 324 00 05	Mon. 333-29	55.21	Mon. 334-31	45 56 58.07 70 14 50.65	87 40 38 292 34 32	Mon. 334-30	70.37
Mon. 334-1	45 57 08.59 70 15 40.06	144 00 05 268 47 40	Mon. 334-1	19.03	Mon. 334-32	45 56 57.19 70 14 47.64	112 34 34 329 29 53	Mon. 334-31	49.32
Mon. 334-2	45 57 08.62 70 15 38.28	88 47 41 273 11 40	Mon. 334-2	38.34	Mon. 335	45 56 55.82 70 14 46.47	149 29 54 319 05 05	Mon. 334-32	71.54
Mon. 334-3	45 57 08.53 70 15 36.10	93 11 42 306 43 42	Mon. 334-3	47.18	Mon. 335-1	45 56 54.07 70 14 44.30	139 05 07 339 16 39	Mon. 335-1	75.31
Mon. 334-4	45 57 07.64 70 15 34.38	126 43 43 236 11 43	Mon. 334-4	46.04	Mon. 335-2	45 56 51.78 70 14 43.06	159 16 40 295 49 46	Mon. 335-2	153.38
Mon. 334-5	45 57 09.61 70 15 30.16	56 11 46 297 22 46	Mon. 334-5	109.45	Mon. 335-3	45 56 49.62 70 14 36.65	115 49 51 313 02 37	Mon. 335-3	62.16
Mon. 334-6	45 57 07.76 70 15 25.03	117 22 50 223 12 26	Mon. 334-6	124.46	Mon. 335-4	45 56 48.25 70 14 34.54	133 02 39 39 50 59	Mon. 335-4	57.07
Mon. 334-7	45 57 09.17 70 15 23.13	43 12 27 234 29 52	Mon. 334-7	59.75	Mon. 335-5	45 56 46.83 70 14 36.24	219 50 58 343 26 00	Mon. 335-5	47.38
Mon. 334-8	45 57 10.19 70 15 21.07	54 29 53 211 34 01	Mon. 334-8	54.42	Mon. 335-6	45 56 45.36 70 14 35.61	163 26 00 51 21 07	Mon. 335-6	97.55
Mon. 334-9	45 57 11.66 70 15 19.78	31 34 02 155 52 04	Mon. 334-9	53.19	Mon. 335-7	45 56 43.38 70 14 39.15	231 21 04 45 57 53	Mon. 335-7	66.28
Mon. 334-10	45 57 13.64 70 15 21.05	335 52 03 192 15 17	Mon. 334-10	67.10	Mon. 335-8	45 56 41.89 70 14 41.36	225 57 51 11 31 03	Mon. 335-8	22.22
Mon. 334-11	45 57 15.96 70 15 20.33	12 15 18 238 28 02	Mon. 334-11	73.28	Mon. 335-9	45 56 41.19 70 14 41.57	191 31 03 284 58 27	Mon. 335-9	74.13
Mon. 334-12	45 57 17.72 70 15 16.21	58 28 05 225 06 05	Mon. 334-12	104.02	Mon. 335-10	45 56 40.57 70 14 38.24	104 58 29 290 19 40	Mon. 335-10	85.86
Mon. 334-13	45 57 19.27 70 15 13.98	45 06 07 246 51 09	Mon. 334-13	67.75	Mon. 335-11	45 56 39.60 70 14 34.51	110 19 43 233 44 01	Mon. 335-11	41.58
Mon. 334-14	45 57 19.79 70 15 12.23	66 51 10 303 06 12	Mon. 334-14	41.05	Mon. 335-12	45 56 40.40 70 14 32.95	53 44 02 254 14 48	Mon. 335-12	44.24
Mon. 334-15	45 57 17.90 70 15 08.08	123 06 15 331 03 29	Mon. 334-15	106.71	Mon. 335-13	45 56 40.79 70 14 30.97	74 14 49 296 17 41	Mon. 335-13	30.10
Mon. 334-16	45 57 16.82 70 15 07.23	151 03 30 36 47 21	Mon. 334-16	38.07	Mon. 335-14	45 56 40.35 70 14 29.72	116 17 42 326 09 09	Mon. 335-14	74.83

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 335-15-----	45 56 38.34 70 14 27.79	146 09 10 252 39 17	Mon. 335-14----- Mon. 335-16-----	74.83 64.62	Mon. 337-8-----	45 55 52.53 70 15 16.30	200 44 23 5 05 17	Mon. 337-7----- Mon. 338-----	88.69 41.80
Mon. 335-16-----	45 56 38.96 70 14 24.92	72 39 19 287 52 50	Mon. 335-15----- Mon. 335-17-----	64.62 41.94	Mon. 338-----	45 55 51.18 70 15 16.48	185 05 17 11 52 16	Mon. 337-8----- Mon. 338-1-----	41.80 8.10
Mon. 335-17-----	45 56 38.55 70 14 23.07	107 52 51 356 49 09	Mon. 335-16----- Mon. 335-18-----	41.94 41.02	Mon. 338-1-----	45 55 50.93 70 15 16.55	191 52 16 48 30 41	Mon. 338----- Mon. 338-2-----	8.10 54.41
Mon. 335-18-----	45 56 37.22 70 14 22.96	176 49 09 52 42 57	Mon. 335-17----- Mon. 335-19-----	41.02 121.08	Mon. 338-2-----	45 55 49.76 70 15 18.44	228 30 40 36 51 35	Mon. 338-1----- Mon. 338-3-----	54.41 62.42
Mon. 335-19-----	45 56 34.85 70 14 27.44	232 42 54 1 54 11	Mon. 335-18----- Mon. 335-20-----	121.08 98.37	Mon. 338-3-----	45 55 48.14 70 15 20.18	216 51 34 51 07 15	Mon. 338-2----- Mon. 338-4-----	62.42 73.16
Mon. 335-20-----	45 56 31.66 70 14 27.59	181 54 11 314 24 08	Mon. 335-19----- Mon. 335-21-----	98.37 78.72	Mon. 338-4-----	45 55 46.65 70 15 22.82	231 07 13 16 47 28	Mon. 338-3----- Mon. 338-5-----	73.16 52.72
Mon. 335-21-----	45 56 29.88 70 14 24.98	134 24 10 33 59 42	Mon. 335-20----- Mon. 335-22-----	78.72 47.94	Mon. 338-5-----	45 55 45.02 70 15 23.53	196 47 27 39 32 06	Mon. 338-4----- Mon. 338-6-----	52.72 26.97
Mon. 335-22-----	45 56 28.59 70 14 26.22	213 59 41 24 36 12	Mon. 335-21----- Mon. 335-23-----	47.94 43.43	Mon. 338-6-----	45 55 44.34 70 15 24.33	219 32 05 77 20 47	Mon. 338-5----- Mon. 338-7-----	26.97 155.51
Mon. 335-23-----	45 56 27.31 70 14 27.06	204 36 11 343 11 54	Mon. 335-22----- Mon. 336-----	43.43 38.77	Mon. 338-7-----	45 55 43.24 70 15 31.37	257 20 42 78 12 15	Mon. 338-6----- Mon. 338-8-----	155.51 43.57
Mon. 336-----	45 56 26.11 70 14 26.54	163 11 54 334 25 13	Mon. 335-23----- Mon. 336-1-----	38.77 20.28	Mon. 338-8-----	45 55 42.95 70 15 33.35	258 12 14 357 34 02	Mon. 338-7----- Mon. 338-9-----	43.57 93.94
Mon. 336-1-----	45 56 25.52 70 14 26.13	154 25 13 324 42 01	Mon. 336----- Mon. 336-2-----	20.28 64.88	Mon. 338-9-----	45 55 39.91 70 15 33.16	177 34 02 7 58 53	Mon. 338-8----- Mon. 339-----	93.94 97.63
Mon. 336-2-----	45 56 23.80 70 14 24.39	144 42 02 21 45 50	Mon. 336-1----- Mon. 336-3-----	64.88 25.02	Mon. 339-----	45 55 36.78 70 15 33.79	187 58 53 50 11 36	Mon. 338-9----- Mon. 339-1-----	97.63 129.69
Mon. 336-3-----	45 56 23.05 70 14 24.82	201 45 50 43 44 15	Mon. 336-2----- Mon. 336-4-----	25.02 104.31	Mon. 339-1-----	45 55 34.09 70 15 38.42	230 11 33 62 33 05	Mon. 339----- Mon. 339-2-----	129.69 125.53
Mon. 336-4-----	45 56 20.61 70 14 28.17	223 44 13 52 31 19	Mon. 336-3----- Mon. 336-5-----	104.31 198.92	Mon. 339-2-----	45 55 32.22 70 15 43.59	242 33 01 40 29 02	Mon. 339-1----- Mon. 339-3-----	125.53 58.04
Mon. 336-5-----	45 56 16.69 70 14 35.50	232 31 14 26 45 53	Mon. 336-4----- Mon. 336-6-----	198.92 65.87	Mon. 339-3-----	45 55 30.79 70 15 45.34	220 29 01 32 22 07	Mon. 339-2----- Mon. 339-4-----	58.04 74.56
Mon. 336-6-----	45 56 14.78 70 14 36.88	206 45 52 11 25 51	Mon. 336-5----- Mon. 336-7-----	65.87 33.59	Mon. 339-4-----	45 55 28.75 70 15 47.19	212 22 06 35 34 24	Mon. 339-3----- Mon. 339-5-----	74.56 77.66
Mon. 336-7-----	45 56 13.72 70 14 37.18	191 25 51 68 11 33	Mon. 336-6----- Mon. 336-8-----	33.59 39.47	Mon. 339-5-----	45 55 26.70 70 15 49.29	215 34 22 352 22 08	Mon. 339-4----- Mon. 339-6-----	77.66 52.39
Mon. 336-8-----	45 56 13.24 70 14 38.89	248 11 32 124 12 04	Mon. 336-7----- Mon. 336-9-----	39.47 43.52	Mon. 339-6-----	45 55 25.02 70 15 48.96	172 22 08 325 39 17	Mon. 339-5----- Mon. 340-----	52.39 81.15
Mon. 336-9-----	45 56 14.03 70 14 40.56	304 12 03 57 52 11	Mon. 336-8----- Mon. 336-10-----	43.52 55.11	Mon. 340-----	45 55 22.85 70 15 46.84	145 39 19 330 49 30	Mon. 339-6----- Mon. 340-1-----	81.15 41.39
Mon. 336-10-----	45 56 13.08 70 14 42.72	237 52 09 60 54 14	Mon. 336-9----- Mon. 336-11-----	55.11 64.63	Mon. 340-1-----	45 55 21.68 70 15 45.90	150 49 31 11 21 17	Mon. 340----- Mon. 340-2-----	41.39 81.14
Mon. 336-11-----	45 56 12.06 70 14 45.34	240 54 12 68 58 20	Mon. 336-10----- Mon. 336-12-----	64.63 122.83	Mon. 340-2-----	45 55 19.10 70 15 46.64	191 21 16 16 27 40	Mon. 340-1----- Mon. 340-3-----	81.14 64.28
Mon. 336-12-----	45 56 10.64 70 14 50.67	248 58 16 45 58 29	Mon. 336-11----- Mon. 336-13-----	122.83 76.78	Mon. 340-3-----	45 55 17.11 70 15 47.49	196 27 39 351 01 30	Mon. 340-2----- Mon. 340-4-----	64.28 94.33
Mon. 336-13-----	45 56 08.91 70 14 53.23	225 58 27 38 11 13	Mon. 336-12----- Mon. 337-----	76.78 51.45	Mon. 340-4-----	45 55 14.09 70 15 46.81	171 01 30 24 37 54	Mon. 340-3----- Mon. 340-5-----	94.33 27.98
Mon. 337-----	45 56 07.60 70 14 54.70	218 11 12 40 43 31	Mon. 336-13----- Mon. 337-1-----	51.45 56.13	Mon. 340-5-----	45 55 13.26 70 15 47.35	204 37 54 327 08 01	Mon. 340-4----- Mon. 340-6-----	27.98 41.81
Mon. 337-1-----	45 56 06.22 70 14 56.40	220 43 30 54 04 44	Mon. 337----- Mon. 337-2-----	56.13 181.47	Mon. 340-6-----	45 55 12.13 70 15 46.29	147 08 02 262 21 11	Mon. 340-5----- Mon. 340-7-----	41.81 39.14
Mon. 337-2-----	45 56 02.77 70 15 03.23	234 04 39 70 01 50	Mon. 337-1----- Mon. 337-3-----	181.47 103.45	Mon. 340-7-----	45 55 12.30 70 15 44.49	82 21 12 227 49 09	Mon. 340-6----- Mon. 340-8-----	39.14 72.02
Mon. 337-3-----	45 56 01.63 70 15 07.74	250 01 47 46 08 47	Mon. 337-2----- Mon. 337-4-----	103.45 112.71	Mon. 340-8-----	45 55 13.86 70 15 42.02	47 49 11 262 40 43	Mon. 340-7----- Mon. 340-9-----	72.02 39.90
Mon. 337-4-----	45 55 59.10 70 15 11.51	226 08 44 42 15 14	Mon. 337-3----- Mon. 337-5-----	112.71 57.33	Mon. 340-9-----	45 55 14.03 70 15 40.18	82 40 44 317 33 34	Mon. 340-8----- Mon. 340-10-----	39.90 25.09
Mon. 337-5-----	45 55 57.73 70 15 13.30	222 15 13 69 36 25	Mon. 337-4----- Mon. 337-6-----	57.33 17.53	Mon. 340-10-----	45 55 13.43 70 15 39.40	137 33 35 325 52 20	Mon. 340-9----- Mon. 340-11-----	25.09 94.47
Mon. 337-6-----	45 55 57.53 70 15 14.06	249 36 24 13 16 36	Mon. 337-5----- Mon. 337-7-----	17.53 73.26	Mon. 340-11-----	45 55 10.90 70 15 36.94	145 52 22 344 33 04	Mon. 340-10----- Mon. 340-12-----	94.47 73.15
Mon. 337-7-----	45 55 55.22 70 15 14.85	193 16 36 20 44 24	Mon. 337-6----- Mon. 337-8-----	73.26 88.69	Mon. 340-12-----	45 55 08.61 70 15 36.03	164 33 05 304 25 56	Mon. 340-11----- Mon. 340-13-----	73.15 43.34



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 340-13-----	45 55 07.82 70 15 34.37	124 23 57 293 35 31	Mon. 340-12----- Mon. 340-14-----	43.34 94.31	Mon. 341-16-----	45 54 31.66 70 15 20.06	148 52 56 354 57 49	Mon. 341-15----- Mon. 341-17-----	38.44 46.07
Mon. 340-14-----	45 55 06.60 70 15 30.36	113 35 34 300 40 29	Mon. 340-13----- Mon. 340-15-----	94.31 41.47	Mon. 341-17-----	45 54 30.17 70 15 19.87	174 57 49 313 33 24	Mon. 341-16----- Mon. 341-18-----	46.07 49.62
Mon. 340-15-----	45 55 05.91 70 15 28.71	120 40 30 347 00 08	Mon. 340-14----- Mon. 340-16-----	41.47 65.53	Mon. 341-18-----	45 54 29.07 70 15 18.20	133 33 25 340 19 18	Mon. 341-17----- Mon. 341-19-----	49.62 44.45
Mon. 340-16-----	45 55 03.84 70 15 28.02	167 00 08 52 54 55	Mon. 340-15----- Mon. 340-17-----	65.53 60.47	Mon. 341-19-----	45 54 27.71 70 15 17.51	160 19 19 290 41 59	Mon. 341-18----- Mon. 341-20-----	44.45 73.02
Mon. 340-17-----	45 55 02.66 70 15 30.26	232 54 53 342 22 52	Mon. 340-16----- Mon. 340-18-----	60.47 48.13	Mon. 341-20-----	45 54 26.87 70 15 14.34	110 42 01 8 39 59	Mon. 341-19----- Mon. 341-21-----	73.02 72.56
Mon. 340-18-----	45 55 01.18 70 15 29.59	162 22 52 341 20 59	Mon. 340-17----- Mon. 340-19-----	48.13 69.95	Mon. 341-21-----	45 54 24.55 70 15 14.84	188 39 59 16 02 27	Mon. 341-20----- Mon. 341-22-----	72.56 98.01
Mon. 340-19-----	45 54 59.03 70 15 28.55	161 21 00 6 32 04	Mon. 340-18----- Mon. 340-20-----	69.95 18.92	Mon. 341-22-----	45 54 21.50 70 15 16.10	196 02 26 359 28 17	Mon. 341-21----- Mon. 341-23-----	98.01 33.19
Mon. 340-20-----	45 54 58.42 70 15 28.65	186 32 04 27 29 51	Mon. 340-19----- Mon. 340-21-----	18.92 24.41	Mon. 341-23-----	45 54 20.42 70 15 16.09	179 28 17 336 27 08	Mon. 341-22----- Mon. 341-24-----	33.19 60.23
Mon. 340-21-----	45 54 57.72 70 15 29.17	207 29 51 8 43 44	Mon. 340-20----- Mon. 340-22-----	24.41 31.88	Mon. 341-24-----	45 54 18.64 70 15 14.97	156 27 09 8 26 54	Mon. 341-23----- Mon. 341-25-----	60.23 35.35
Mon. 340-22-----	45 54 56.70 70 15 29.40	188 43 44 77 57 50	Mon. 340-21----- Mon. 340-23-----	31.88 77.18	Mon. 341-25-----	45 54 17.50 70 15 15.21	188 26 54 13 30 32	Mon. 341-24----- Mon. 341-26-----	35.35 93.17
Mon. 340-23-----	45 54 56.18 70 15 32.90	257 57 47 26 56 05	Mon. 340-22----- Mon. 340-24-----	77.18 65.96	Mon. 341-26-----	45 54 14.57 70 15 16.22	193 30 31 319 46 27	Mon. 341-25----- Mon. 341-27-----	93.17 70.43
Mon. 340-24-----	45 54 54.27 70 15 34.28	206 56 04 340 47 00	Mon. 340-23----- Mon. 340-25-----	65.96 91.92	Mon. 341-27-----	45 54 12.83 70 15 14.11	139 46 29 25 01 49	Mon. 341-26----- Mon. 341-28-----	70.43 40.42
Mon. 340-25-----	45 54 51.46 70 15 32.88	160 47 01 11 05 43	Mon. 340-24----- Mon. 340-26-----	91.92 45.05	Mon. 341-28-----	45 54 11.64 70 15 14.90	205 01 48 22 54 20	Mon. 341-27----- Mon. 341-29-----	40.42 50.98
Mon. 340-26-----	45 54 50.03 70 15 33.28	191 05 43 343 30 32	Mon. 340-25----- Mon. 340-27-----	45.05 51.80	Mon. 341-29-----	45 54 10.12 70 15 15.82	202 54 19 11 00 14	Mon. 341-28----- Mon. 341-30-----	50.98 26.50
Mon. 340-27-----	45 54 48.42 70 15 32.60	163 30 32 358 28 23	Mon. 340-26----- Mon. 341-----	51.80 42.55	Mon. 341-30-----	45 54 09.28 70 15 16.06	191 00 14 40 28 45	Mon. 341-29----- Mon. 341-31-----	26.50 29.45
Mon. 341-----	45 54 47.04 70 15 32.55	178 28 23 353 38 12	Mon. 340-27----- Mon. 341-1-----	42.55 78.13	Mon. 341-31-----	45 54 08.55 70 15 16.95	220 28 44 84 17 33	Mon. 341-30----- Mon. 341-32-----	29.45 12.93
Mon. 341-1-----	45 54 44.53 70 15 32.14	173 38 12 16 19 55	Mon. 341----- Mon. 341-2-----	78.13 66.23	Mon. 341-32-----	45 54 08.51 70 15 17.54	264 17 33 49 37 28	Mon. 341-31----- Mon. 341-33-----	12.93 25.56
Mon. 341-2-----	45 54 42.47 70 15 33.01	196 19 54 30 43 01	Mon. 341-1----- Mon. 341-3-----	66.23 55.25	Mon. 341-33-----	45 54 07.97 70 15 18.45	229 37 27 49 27 22	Mon. 341-32----- Mon. 341-34-----	25.56 71.17
Mon. 341-3-----	45 54 40.93 70 15 34.32	210 43 00 26 29 13	Mon. 341-2----- Mon. 341-4-----	55.25 35.23	Mon. 341-34-----	45 54 06.48 70 15 20.96	229 27 20 34 05 09	Mon. 341-33----- Mon. 341-35-----	71.17 82.46
Mon. 341-4-----	45 54 39.91 70 15 35.05	206 29 12 45 43 37	Mon. 341-3----- Mon. 341-5-----	35.23 44.30	Mon. 341-35-----	45 54 04.26 70 15 23.10	214 05 08 65 58 20	Mon. 341-34----- Mon. 341-36-----	82.46 64.29
Mon. 341-5-----	45 54 38.91 70 15 36.52	225 43 36 13 10 43	Mon. 341-4----- Mon. 341-6-----	44.30 32.54	Mon. 341-36-----	45 54 03.42 70 15 25.82	245 58 18 65 56 00	Mon. 341-35----- Mon. 342-----	64.29 46.97
Mon. 341-6-----	45 54 37.88 70 15 36.86	193 10 43 353 20 07	Mon. 341-5----- Mon. 341-7-----	32.54 74.16	Mon. 342-----	45 54 02.80 70 15 27.81	245 55 59 57 36 33	Mon. 341-36----- Mon. 342-1-----	46.97 14.10
Mon. 341-7-----	45 54 35.50 70 15 36.46	173 20 07 333 20 13	Mon. 341-6----- Mon. 341-8-----	74.16 42.12	Mon. 342-1-----	45 54 02.55 70 15 28.36	237 36 33 33 14 19	Mon. 342----- Mon. 342-2-----	14.10 108.97
Mon. 341-8-----	45 54 34.28 70 15 35.59	153 20 14 278 07 44	Mon. 341-7----- Mon. 341-9-----	42.12 65.23	Mon. 342-2-----	45 53 59.60 70 15 31.13	213 14 17 58 13 25	Mon. 342-1----- Mon. 342-3-----	108.97 61.96
Mon. 341-9-----	45 54 33.98 70 15 32.59	98 07 46 289 42 34	Mon. 341-8----- Mon. 341-10-----	65.23 27.56	Mon. 342-3-----	45 53 58.54 70 15 33.58	238 13 23 69 11 42	Mon. 342-2----- Mon. 342-4-----	61.96 76.30
Mon. 341-10-----	45 54 33.68 70 15 31.39	109 42 35 316 59 29	Mon. 341-9----- Mon. 341-11-----	27.56 45.68	Mon. 342-4-----	45 53 57.66 70 15 36.88	249 11 40 45 44 58	Mon. 342-3----- Mon. 342-5-----	76.30 55.69
Mon. 341-11-----	45 54 32.60 70 15 29.94	136 59 30 272 16 05	Mon. 341-10----- Mon. 341-12-----	45.68 44.61	Mon. 342-5-----	45 53 56.41 70 15 38.74	225 44 57 31 35 37	Mon. 342-4----- Mon. 342-6-----	55.69 63.63
Mon. 341-12-----	45 54 32.54 70 15 27.87	92 16 06 257 59 35	Mon. 341-11----- Mon. 341-13-----	44.61 45.02	Mon. 342-6-----	45 53 54.65 70 15 40.28	211 35 36 11 58 03	Mon. 342-5----- Mon. 342-7-----	63.63 81.00
Mon. 341-13-----	45 54 32.84 70 15 25.83	77 59 36 279 07 47	Mon. 341-12----- Mon. 341-14-----	45.02 54.16	Mon. 342-7-----	45 53 52.08 70 15 41.06	191 58 02 32 20 45	Mon. 342-6----- Mon. 342-8-----	81.00 110.18
Mon. 341-14-----	45 54 32.56 70 15 23.35	99 07 49 264 28 54	Mon. 341-13----- Mon. 341-15-----	54.16 51.37	Mon. 342-8-----	45 53 49.07 70 15 43.79	212 20 43 67 59 06	Mon. 342-7----- Mon. 342-9-----	110.18 131.87
Mon. 341-15-----	45 54 32.72 70 15 20.98	84 28 56 328 52 55	Mon. 341-14----- Mon. 341-16-----	51.37 38.44	Mon. 342-9-----	45 53 47.47 70 15 49.46	247 59 02 24 59 11	Mon. 342-8----- Mon. 342-10-----	131.87 160.88

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 342-10	45 53 42.75 70 15 52.62	204 59 09 26 03 56	Mon. 342-9 Mon. 342-11	160.88 99.20	Mon. 343-8	45 52 57.11 70 16 24.89	219 47 10 17 50 21	Mon. 343-7 Mon. 343-9	94.43 59.18
Mon. 342-11	45 53 39.86 70 15 54.64	206 03 55 55 19 34	Mon. 342-10 Mon. 342-12	99.20 107.20	Mon. 343-9	45 52 55.28 70 16 25.73	197 50 20 23 21 01	Mon. 343-8 Mon. 343-10	59.18 111.41
Mon. 342-12	45 53 37.88 70 15 58.73	235 19 31 354 23 44	Mon. 342-11 Mon. 342-13	107.20 41.09	Mon. 343-10	45 52 51.97 70 16 27.78	203 21 00 2 05 17	Mon. 343-9 Mon. 343-11	111.41 21.68
Mon. 342-13	45 53 36.56 70 15 58.54	174 23 44 304 05 33	Mon. 342-12 Mon. 342-14	41.09 136.23	Mon. 343-11	45 52 51.27 70 16 27.82	182 05 17 353 16 51	Mon. 343-10 Mon. 343-12	21.68 76.22
Mon. 342-14	45 53 34.09 70 15 53.31	124 05 37 293 49 19	Mon. 342-13 Mon. 342-15	136.23 159.73	Mon. 343-12	45 52 48.82 70 16 27.40	173 16 51 19 08 31	Mon. 343-11 Mon. 343-13	76.22 57.40
Mon. 342-15	45 53 32.00 70 15 46.53	113 49 24 231 03 42	Mon. 342-14 Mon. 342-16	159.73 51.75	Mon. 343-13	45 52 47.06 70 16 28.28	199 08 30 58 11 46	Mon. 343-12 Mon. 343-14	57.40 90.75
Mon. 342-16	45 53 33.05 70 15 44.66	51 03 43 308 40 20	Mon. 342-15 Mon. 342-17	51.75 89.13	Mon. 343-14	45 52 45.51 70 16 31.85	238 11 43 51 47 35	Mon. 343-13 Mon. 343-15	90.75 64.33
Mon. 342-17	45 53 31.25 70 15 41.44	128 40 22 296 56 11	Mon. 342-16 Mon. 342-18	89.13 183.04	Mon. 343-15	45 52 44.22 70 16 34.20	231 47 33 65 03 12	Mon. 343-14 Mon. 343-16	64.33 122.70
Mon. 342-18	45 53 28.56 70 15 33.87	116 56 16 50 17 10	Mon. 342-17 Mon. 342-19	183.04 51.48	Mon. 343-16	45 52 42.55 70 16 39.36	245 03 08 27 28 16	Mon. 343-15 Mon. 343-17	122.70 96.38
Mon. 342-19	45 53 27.50 70 15 35.70	230 17 09 40 52 15	Mon. 342-18 Mon. 342-20	51.48 68.09	Mon. 343-17	45 52 39.78 70 16 41.42	207 28 15 42 24 47	Mon. 343-16 Mon. 343-18	96.38 83.98
Mon. 342-20	45 53 25.83 70 15 37.77	220 52 14 344 04 42	Mon. 342-19 Mon. 342-21	68.09 49.69	Mon. 343-18	45 52 37.77 70 16 44.04	222 24 45 75 29 40	Mon. 343-17 Mon. 343-19	83.98 19.93
Mon. 342-21	45 53 24.28 70 15 37.14	164 04 42 45 51 51	Mon. 342-20 Mon. 342-22	49.69 56.32	Mon. 343-19	45 52 37.61 70 16 44.94	255 29 39 44 04 59	Mon. 343-18 Mon. 343-20	19.93 41.59
Mon. 342-22	45 53 23.01 70 15 39.01	225 51 50 51 47 52	Mon. 342-21 Mon. 342-23	56.32 81.85	Mon. 343-20	45 52 36.64 70 16 46.28	224 04 58 70 57 47	Mon. 343-19 Mon. 343-21	41.59 43.08
Mon. 342-23	45 53 21.37 70 15 42.00	231 47 50 13 06 51	Mon. 342-22 Mon. 342-24	81.85 41.69	Mon. 343-21	45 52 36.18 70 16 48.17	250 57 46 41 21 35	Mon. 343-20 Mon. 344	43.08 81.78
Mon. 342-24	45 53 20.06 70 15 42.44	193 06 51 37 13 51	Mon. 342-23 Mon. 342-25	41.69 95.94	Mon. 344	45 52 34.20 70 16 50.68	221 21 33 41 21 33	Mon. 343-21 Mon. 344-1	81.78 58.53
Mon. 342-25	45 53 17.58 70 15 45.13	217 13 49 66 45 53	Mon. 342-24 Mon. 342-26	95.94 84.73	Mon. 344-1	45 52 32.77 70 16 52.47	221 21 32 1 13 50	Mon. 344 Mon. 344-2	58.53 36.12
Mon. 342-26	45 53 16.50 70 15 48.74	246 45 50 66 42 52	Mon. 342-25 Mon. 342-27	84.73 67.62	Mon. 344-2	45 52 31.60 70 16 52.50	181 13 50 3 06 02	Mon. 344-1 Mon. 344-3	36.12 60.19
Mon. 342-27	45 53 15.63 70 15 51.62	246 42 50 39 03 45	Mon. 342-26 Mon. 342-28	67.62 76.90	Mon. 344-3	45 52 29.66 70 16 52.66	183 06 02 16 07 08	Mon. 344-2 Mon. 344-4	60.19 61.42
Mon. 342-28	45 53 13.70 70 15 53.87	219 03 43 64 35 25	Mon. 342-27 Mon. 342-29	76.90 35.83	Mon. 344-4	45 52 27.75 70 16 53.45	196 07 07 42 11 24	Mon. 344-3 Mon. 344-5	61.42 74.16
Mon. 342-29	45 53 13.20 70 15 55.37	244 35 24 45 00 17	Mon. 342-28 Mon. 342-30	35.83 94.63	Mon. 344-5	45 52 25.97 70 16 55.76	222 11 22 71 05 27	Mon. 344 4 Mon. 344-6	74.16 80.49
Mon. 342-30	45 53 11.03 70 15 58.47	225 00 14 61 29 47	Mon. 342-29 Mon. 342-31	94.63 61.56	Mon. 344-6	45 52 25.12 70 16 59.29	251 05 24 38 10 23	Mon. 344-5 Mon. 344-7	80.49 20.49
Mon. 342-31	45 53 10.08 70 16 00.98	241 29 45 79 17 35	Mon. 342-30 Mon. 342-32	61.56 95.84	Mon. 344-7	45 52 24.60 70 16 59.87	218 10 23 39 30 03	Mon. 344-6 Mon. 344-8	20.49 138.85
Mon. 342-32	45 53 09.50 70 16 05.35	259 17 32 35 06 51	Mon. 342-31 Mon. 343	95.84 14.99	Mon. 344-8	45 52 21.13 70 17 03.97	219 30 00 30 22 40	Mon. 344-7 Mon. 344-9	138.85 95.98
Mon. 343	45 53 09.11 70 16 05.75	215 06 51 34 01 29	Mon. 342-32 Mon. 343-1	14.99 55.85	Mon. 344-9	45 52 18.45 70 17 06.22	210 22 38 90 57 59	Mon. 344-8 Mon. 344-10	95.98 67.64
Mon. 343-1	45 53 07.61 70 16 07.20	214 01 28 53 27 24	Mon. 343 Mon. 343-2	55.85 88.06	Mon. 344-10	45 52 18.48 70 17 09.36	270 57 57 57 25 42	Mon. 344-9 Mon. 344-11	67.64 60.11
Mon. 343-2	45 53 05.91 70 16 10.48	233 27 22 64 10 18	Mon. 343 1 Mon. 343-3	88.06 74.44	Mon. 344-11	45 52 17.44 70 17 11.70	237 25 40 48 17 55	Mon. 344-10 Mon. 344-12	60.11 46.43
Mon. 343-3	45 53 04.86 70 16 13.59	244 10 16 70 26 29	Mon. 343-2 Mon. 343-4	74.44 30.20	Mon. 344-12	45 52 16.44 70 17 13.31	228 17 54 76 09 33	Mon. 344-11 Mon. 344-13	46.43 62.79
Mon. 343-4	45 53 04.53 70 16 14.91	250 26 28 39 57 17	Mon. 343-3 Mon. 343-5	30.20 76.53	Mon. 344-13	45 52 15.95 70 17 16.14	256 09 31 59 03 03	Mon. 344-12 Mon. 344-14	62.79 32.59
Mon. 343-5	45 53 02.63 70 16 17.19	219 57 15 47 07 16	Mon. 343-4 Mon. 343-6	76.53 74.16	Mon. 344-14	45 52 15.41 70 17 17.43	239 03 02 39 16 46	Mon. 344-13 Mon. 344-15	32.59 201.95
Mon. 343-6	45 53 01.00 70 16 19.71	227 07 14 47 16 44	Mon. 343-5 Mon. 343-7	74.16 69.94	Mon. 344-15	45 52 10.34 70 17 23.36	219 16 42 33 01 13	Mon. 344-14 Mon. 344-16	201.95 55.61
Mon. 343-7	45 52 59.46 70 16 22.09	227 16 42 39 47 12	Mon. 343-6 Mon. 343-8	69.94 94.43	Mon. 344-16	45 52 08.83 70 17 24.77	213 01 12 86 28 18	Mon. 344-15 Mon. 344-17	55.61 49.71

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 344-17-----	45 52 08.74 70 17 27.07	266 28 17 48 50 30	Mon. 344-16----- Mon. 344-18-----	49.71 49.45	Mon. 345-26-----	45 51 18.40 70 19 34.40	256 24 05 81 22 45	Mon. 345-25----- Mon. 345-27-----	97.05 103.58
Mon. 344-18-----	45 52 07.68 70 17 28.79	228 50 29 37 26 23	Mon. 344-17----- Mon. 344-19-----	49.45 87.20	Mon. 345-27-----	45 51 17.89 70 19 39.15	261 22 42 114 29 47	Mon. 345-26----- Mon. 345-28-----	103.58 68.90
Mon. 344-19-----	45 52 05.44 70 17 31.25	217 26 22 46 54 03	Mon. 344-18----- Mon. 344-20-----	87.20 45.81	Mon. 345-28-----	45 51 18.82 70 19 42.06	294 29 45 75 32 49	Mon. 345-27----- Mon. 345-29-----	68.90 44.34
Mon. 344-20-----	45 52 04.42 70 17 32.80	226 54 02 59 13 26	Mon. 344-19----- Mon. 344-21-----	45.81 104.98	Mon. 345-29-----	45 51 18.46 70 19 44.05	255 32 48 73 14 53	Mon. 345-28----- Mon. 345-30-----	44.34 56.31
Mon. 344-21-----	45 52 02.68 70 17 36.98	239 13 23 39 21 58	Mon. 344-20----- Mon. 345-----	104.98 134.85	Mon. 345-30-----	45 51 17.94 70 19 46.54	253 14 51 6 03 55	Mon. 345-29----- Mon. 345-31-----	56.31 44.78
Mon. 345-----	45 51 59.31 70 17 40.95	219 21 56 41 27 10	Mon. 344-21----- Mon. 345-1-----	134.85 18.60	Mon. 345-31-----	45 51 16.49 70 19 46.76	186 03 55 2 25 48	Mon. 345-30----- Mon. 345-32-----	44.78 45.52
Mon. 345-1-----	45 51 58.86 70 17 41.52	221 27 10 50 33 33	Mon. 345----- Mon. 345-2-----	18.60 180.62	Mon. 345-32-----	45 51 15.02 70 19 46.85	182 25 48 79 57 28	Mon. 345-31----- Mon. 345-33-----	45.52 63.66
Mon. 345-2-----	45 51 55.14 70 17 47.98	230 33 28 53 25 44	Mon. 345-1----- Mon. 345-3-----	180.62 84.65	Mon. 345-33-----	45 51 14.66 70 19 49.76	259 57 26 105 38 19	Mon. 345-32----- Mon. 345-34-----	63.66 74.98
Mon. 345-3-----	45 51 53.50 70 17 51.14	233 25 42 62 47 17	Mon. 345-2----- Mon. 345-4-----	84.65 137.71	Mon. 345-34-----	45 51 15.32 70 19 53.11	285 38 16 55 38 38	Mon. 345-33----- Mon. 345-35-----	74.98 135.60
Mon. 345-4-----	45 51 51.46 70 17 56.81	242 47 13 70 01 17	Mon. 345-3----- Mon. 345-5-----	137.71 165.61	Mon. 345-35-----	45 51 12.84 70 19 58.30	235 38 34 46 58 45	Mon. 345-34----- Mon. 345-36-----	135.60 48.43
Mon. 345-5-----	45 51 49.63 70 18 04.03	250 01 12 65 14 16	Mon. 345-4----- Mon. 345-6-----	165.61 255.49	Mon. 345-36-----	45 51 11.77 70 19 59.94	226 58 44 57 11 43	Mon. 345-35----- Mon. 345-37-----	48.43 19.79
Mon. 345-6-----	45 51 46.17 70 18 14.78	245 14 08 13 16 31	Mon. 345-5----- Mon. 345-7-----	255.49 49.56	Mon. 345-37-----	45 51 11.42 70 20 00.71	237 11 42 86 32 46	Mon. 345-36----- Mon. 345-38-----	19.79 59.24
Mon. 345-7-----	45 51 44.60 70 18 15.31	193 16 31 28 59 47	Mon. 345-6----- Mon. 345-8-----	49.56 87.63	Mon. 345-38-----	45 51 11.30 70 20 03.45	266 32 44 104 19 19	Mon. 345-37----- Mon. 346-----	59.24 67.30
Mon. 345-8-----	45 51 42.12 70 18 17.28	208 59 46 40 19 09	Mon. 345-7----- Mon. 345-9-----	87.63 134.67	Mon. 346-----	45 51 11.84 70 20 06.48	284 19 16 125 06 59	Mon. 345-38----- Mon. 346-1-----	67.30 26.50
Mon. 345-9-----	45 51 38.80 70 18 21.32	220 19 06 27 27 52	Mon. 345-8----- Mon. 345-10-----	134.67 67.64	Mon. 346-1-----	45 51 12.34 70 20 07.48	305 06 58 85 23 00	Mon. 346----- Mon. 346-2-----	26.50 85.59
Mon. 345-10-----	45 51 36.85 70 18 22.77	207 27 51 45 07 38	Mon. 345-9----- Mon. 345-11-----	67.64 67.97	Mon. 346-2-----	45 51 12.12 70 20 11.43	265 22 57 79 52 13	Mon. 346-1----- Mon. 346-3-----	85.59 71.25
Mon. 345-11-----	45 51 35.30 70 18 25.00	225 07 36 63 55 22	Mon. 345-10----- Mon. 345-12-----	67.97 54.19	Mon. 346-3-----	45 51 11.71 70 20 14.68	259 52 11 54 42 39	Mon. 346-2----- Mon. 346-4-----	71.25 94.87
Mon. 345-12-----	45 51 34.53 70 18 27.26	243 55 20 41 52 01	Mon. 345-11----- Mon. 345-13-----	54.19 96.37	Mon. 346-4-----	45 51 09.94 70 20 18.27	234 42 36 89 48 59	Mon. 346-3----- Mon. 346-5-----	94.87 107.45
Mon. 345-13-----	45 51 32.20 70 18 30.24	221 51 59 75 46 27	Mon. 345-12----- Mon. 345-14-----	96.37 178.17	Mon. 346-5-----	45 51 09.92 70 20 23.25	269 48 55 72 30 37	Mon. 346-4----- Mon. 346-6-----	107.45 128.67
Mon. 345-14-----	45 51 30.79 70 18 38.24	255 46 21 94 41 19	Mon. 345-13----- Mon. 345-15-----	178.17 122.74	Mon. 346-6-----	45 51 08.67 70 20 28.94	252 30 33 86 36 23	Mon. 346-5----- Mon. 346-7-----	128.67 76.10
Mon. 345-15-----	45 51 31.11 70 18 43.91	274 41 15 71 25 02	Mon. 345-14----- Mon. 345-16-----	122.74 91.46	Mon. 346-7-----	45 51 08.53 70 20 32.46	266 36 20 117 03 16	Mon. 346-6----- Mon. 346-8-----	76.10 16.74
Mon. 345-16-----	45 51 30.17 70 18 47.93	251 24 59 70 47 03	Mon. 345-15----- Mon. 345-17-----	91.46 135.14	Mon. 346-8-----	45 51 08.77 70 20 33.15	297 03 16 32 58 12	Mon. 346-7----- Mon. 346-9-----	16.74 36.55
Mon. 345-17-----	45 51 28.73 70 18 53.85	250 46 59 53 03 34	Mon. 345-16----- Mon. 345-18-----	135.14 263.29	Mon. 346-9-----	45 51 07.78 70 20 34.08	212 58 11 18 56 01	Mon. 346-8----- Mon. 346-10-----	36.55 28.82
Mon. 345-18-----	45 51 23.60 70 19 03.60	233 03 27 69 23 37	Mon. 345-17----- Mon. 345-19-----	263.29 85.92	Mon. 346-10-----	45 51 06.90 70 20 34.51	198 56 01 43 58 21	Mon. 346-9----- Mon. 346-11-----	28.82 32.74
Mon. 345-19-----	45 51 22.62 70 19 07.33	249 23 34 74 59 15	Mon. 345-18----- Mon. 345-20-----	85.92 65.41	Mon. 346-11-----	45 51 06.13 70 20 35.56	223 58 20 30 42 11	Mon. 346-10----- Mon. 346-12-----	32.74 75.04
Mon. 345-20-----	45 51 22.07 70 19 10.26	254 59 13 59 12 05	Mon. 345-19----- Mon. 345-21-----	65.41 81.83	Mon. 346-12-----	45 51 04.04 70 20 37.34	210 42 10 15 11 08	Mon. 346-11----- Mon. 346-13-----	75.04 121.40
Mon. 345-21-----	45 51 20.72 70 19 13.52	239 12 03 112 56 38	Mon. 345-20----- Mon. 345-22-----	81.83 156.29	Mon. 346-13-----	45 51 00.25 70 20 38.81	195 11 07 62 47 47	Mon. 346-12----- Mon. 346-14-----	121.40 111.97
Mon. 345-22-----	45 51 22.69 70 19 20.19	292 56 33 54 37 01	Mon. 345-21----- Mon. 345-23-----	156.29 33.04	Mon. 346-14-----	45 50 58.59 70 20 43.43	242 47 44 64 47 25	Mon. 346-13----- Mon. 346-15-----	111.97 131.73
Mon. 345-23-----	45 51 22.07 70 19 21.44	234 37 00 50 40 53	Mon. 345-22----- Mon. 345-24-----	33.04 131.28	Mon. 346-15-----	45 50 56.77 70 20 48.95	244 47 21 37 08 04	Mon. 346-14----- Mon. 346-16-----	131.73 60.11
Mon. 345-24-----	45 51 19.37 70 19 26.14	230 40 50 84 59 42	Mon. 345-23----- Mon. 345-25-----	131.28 84.15	Mon. 346-16-----	45 50 55.22 70 20 50.63	217 08 03 44 09 53	Mon. 346-15----- Mon. 346-17-----	60.11 110.82
Mon. 345-25-----	45 51 19.14 70 19 30.03	264 59 39 76 24 08	Mon. 345-24----- Mon. 345-26-----	84.15 97.05	Mon. 346-17-----	45 50 52.65 70 20 54.21	224 09 51 52 07 35	Mon. 346-16----- Mon. 347-----	110.82 81.89



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 347-----	45 50 51.02 70 20 57.21	232 07 33 53 37 40	Mon. 346-17----- Mon. 347-1-----	81.89 64.58	Mon. 347-31-----	45 50 07.86 70 21 37.15	261 53 36 113 07 16	Mon. 347-30----- Mon. 347-32-----	23.52 69.63
Mon. 347-1-----	45 50 49.78 70 20 59.62	233 37 38 9 54 13	Mon. 347----- Mon. 347-2-----	64.58 89.68	Mon. 347-32-----	45 50 08.74 70 21 40.11	293 07 14 92 52 42	Mon. 347-31----- Mon. 347-33-----	69.63 59.02
Mon. 347-2-----	45 50 46.92 70 21 00.33	189 54 12 7 00 36	Mon. 347-1----- Mon. 347-3-----	89.68 51.13	Mon. 347-33-----	45 50 08.84 70 21 42.84	272 52 40 105 48 21	Mon. 347-32----- Mon. 347-34-----	59.02 37.94
Mon. 347-3-----	45 50 45.27 70 21 00.62	187 00 36 316 27 07	Mon. 347-2----- Mon. 347-4-----	51.13 25.66	Mon. 347-34-----	45 50 09.17 70 21 44.54	285 48 20 59 30 01	Mon. 347-33----- Mon. 348-----	37.94 14.06
Mon. 347-4-----	45 50 44.67 70 20 59.80	136 27 08 34 29 39	Mon. 347-3----- Mon. 347-5-----	25.66 40.40	Mon. 348-----	45 50 08.94 70 21 45.10	239 30 01 61 31 16	Mon. 347-34----- Mon. 348-1-----	14.06 103.49
Mon. 347-5-----	45 50 43.59 70 21 00.86	214 29 38 30 52 52	Mon. 347-4----- Mon. 347-6-----	40.40 100.91	Mon. 348-1-----	45 50 07.34 70 21 49.31	241 31 13 50 19 38	Mon. 348----- Mon. 348-2-----	103.49 41.66
Mon. 347-6-----	45 50 40.79 70 21 03.26	210 52 50 52 52 11	Mon. 347-5----- Mon. 347-7-----	100.91 40.17	Mon. 348-2-----	45 50 06.48 70 21 50.80	230 19 37 61 59 03	Mon. 348-1----- Mon. 348-3-----	41.66 84.01
Mon. 347-7-----	45 50 40.00 70 21 04.75	232 52 10 48 33 14	Mon. 347-6----- Mon. 347-8-----	40.17 36.87	Mon. 348-3-----	45 50 05.20 70 21 54.23	241 59 01 107 27 30	Mon. 348-2----- Mon. 348-4-----	84.01 60.92
Mon. 347-8-----	45 50 39.21 70 21 06.03	228 33 13 69 38 00	Mon. 347-7----- Mon. 347-9-----	36.87 48.23	Mon. 348-4-----	45 50 05.79 70 21 56.93	287 27 28 108 30 59	Mon. 348-3----- Mon. 348-5-----	60.92 36.72
Mon. 347-9-----	45 50 38.67 70 21 08.13	249 37 58 33 47 09	Mon. 347-8----- Mon. 347-10-----	48.23 69.39	Mon. 348-5-----	45 50 06.17 70 21 58.54	288 30 58 83 45 29	Mon. 348-4----- Mon. 348-6-----	36.72 113.35
Mon. 347-10-----	45 50 36.80 70 21 09.92	213 47 08 26 55 32	Mon. 347-9----- Mon. 347-11-----	69.39 100.08	Mon. 348-6-----	45 50 05.77 70 22 03.76	263 45 25 160 43 00	Mon. 348-5----- Mon. 348-7-----	113.35 37.98
Mon. 347-11-----	45 50 33.91 70 21 12.02	206 55 30 30 41 32	Mon. 347-10----- Mon. 347-12-----	100.08 38.45	Mon. 348-7-----	45 50 06.93 70 22 04.34	340 43 00 162 30 34	Mon. 348-6----- Mon. 348-8-----	37.98 70.84
Mon. 347-12-----	45 50 32.84 70 21 12.93	210 41 31 311 12 15	Mon. 347-11----- Mon. 347-13-----	38.45 67.37	Mon. 348-8-----	45 50 09.12 70 22 05.33	342 30 33 114 14 06	Mon. 348-7----- Mon. 348-9-----	70.84 75.24
Mon. 347-13-----	45 50 31.40 70 21 10.58	131 12 17 333 38 37	Mon. 347-12----- Mon. 347-14-----	67.37 28.58	Mon. 348-9-----	45 50 10.12 70 22 08.51	294 14 04 70 58 38	Mon. 348-8----- Mon. 348-10-----	75.24 24.08
Mon. 347-14-----	45 50 30.57 70 21 09.99	153 38 37 10 00 15	Mon. 347-13----- Mon. 347-15-----	28.58 38.51	Mon. 348-10-----	45 50 09.87 70 22 09.56	250 58 37 61 07 12	Mon. 348-9----- Mon. 348-11-----	24.08 117.65
Mon. 347-15-----	45 50 29.34 70 21 10.30	190 00 15 359 07 42	Mon. 347-14----- Mon. 347-16-----	38.51 31.15	Mon. 348-11-----	45 50 08.03 70 22 14.34	241 07 09 63 14 49	Mon. 348-10----- Mon. 348-12-----	117.65 66.47
Mon. 347-16-----	45 50 28.34 70 21 10.28	179 07 42 346 35 15	Mon. 347-15----- Mon. 347-17-----	31.15 23.46	Mon. 348-12-----	45 50 07.06 70 22 17.08	243 14 47 37 26 29	Mon. 348-11----- Mon. 348-13-----	66.47 43.62
Mon. 347-17-----	45 50 27.60 70 21 10.02	166 35 15 55 00 18	Mon. 347-16----- Mon. 347-18-----	23.46 124.37	Mon. 348-13-----	45 50 05.94 70 22 18.31	217 26 28 20 59 12	Mon. 348-12----- Mon. 348-14-----	43.62 33.66
Mon. 347-18-----	45 50 25.29 70 21 14.75	235 00 15 85 46 50	Mon. 347-17----- Mon. 347-19-----	124.37 56.19	Mon. 348-14-----	45 50 04.92 70 22 18.87	200 59 12 42 50 57	Mon. 348-13----- Mon. 348-15-----	33.66 30.14
Mon. 347-19-----	45 50 25.15 70 21 17.34	265 46 48 56 19 42	Mon. 347-18----- Mon. 347-20-----	56.19 47.69	Mon. 348-15-----	45 50 04.20 70 22 19.82	222 50 56 28 36 42	Mon. 348-14----- Mon. 348-16-----	30.14 56.48
Mon. 347-20-----	45 50 24.30 70 21 19.18	236 19 41 60 14 06	Mon. 347-19----- Mon. 347-21-----	47.69 86.31	Mon. 348-16-----	45 50 02.60 70 22 21.08	208 36 41 298 52 29	Mon. 348-15----- Mon. 348-17-----	56.48 42.26
Mon. 347-21-----	45 50 22.91 70 21 22.65	240 14 03 38 19 47	Mon. 347-20----- Mon. 347-22-----	86.31 108.62	Mon. 348-17-----	45 50 01.93 70 22 19.36	118 52 30 319 45 18	Mon. 348-16----- Mon. 348-18-----	42.26 196.11
Mon. 347-22-----	45 50 20.15 70 21 25.78	218 19 45 341 33 42	Mon. 347-21----- Mon. 347-23-----	108.62 112.55	Mon. 348-18-----	45 49 57.08 70 22 13.49	139 45 22 27 14 10	Mon. 348-17----- Mon. 348-19-----	196.11 91.51
Mon. 347-23-----	45 50 16.69 70 21 24.13	161 33 43 40 51 35	Mon. 347-22----- Mon. 347-24-----	112.55 79.68	Mon. 348-19-----	45 49 54.45 70 22 15.43	207 14 09 306 17 00	Mon. 348-18----- Mon. 348-20-----	91.51 99.04
Mon. 347-24-----	45 50 14.74 70 21 26.54	220 51 33 38 40 02	Mon. 347-23----- Mon. 347-25-----	79.68 48.40	Mon. 348-20-----	45 49 52.55 70 22 11.74	126 17 03 45 51 54	Mon. 348-19----- Mon. 348-21-----	99.04 125.74
Mon. 347-25-----	45 50 13.51 70 21 27.94	218 40 01 59 55 37	Mon. 347-24----- Mon. 347-26-----	48.40 60.93	Mon. 348-21-----	45 49 49.71 70 22 15.92	225 51 51 49 28 47	Mon. 348-20----- Mon. 348-22-----	125.74 73.71
Mon. 347-26-----	45 50 12.52 70 21 30.39	239 55 35 53 36 00	Mon. 347-25----- Mon. 347-27-----	60.93 36.58	Mon. 348-22-----	45 49 48.16 70 22 18.51	229 28 45 29 58 43	Mon. 348-21----- Mon. 348-23-----	73.71 133.18
Mon. 347-27-----	45 50 11.82 70 21 31.75	233 35 59 31 28 25	Mon. 347-26----- Mon. 347-28-----	36.58 66.46	Mon. 348-23-----	45 49 44.43 70 22 21.60	209 58 41 7 14 44	Mon. 348-22----- Mon. 348-24-----	133.18 102.02
Mon. 347-28-----	45 50 09.99 70 21 33.36	211 28 24 71 02 20	Mon. 347-27----- Mon. 347-29-----	66.46 35.31	Mon. 348-24-----	45 49 41.15 70 22 22.19	187 14 44 49 20 50	Mon. 348-23----- Mon. 348-25-----	102.02 42.77
Mon. 347-29-----	45 50 09.61 70 21 34.90	251 02 19 26 13 28	Mon. 347-28----- Mon. 347-30-----	35.31 56.80	Mon. 348-25-----	45 49 40.25 70 22 23.69	229 20 49 70 01 57	Mon. 348-24----- Mon. 348-26-----	42.77 15.86
Mon. 347-30-----	45 50 07.96 70 21 36.07	206 13 27 81 53 37	Mon. 347-29----- Mon. 347-31-----	56.80 23.52	Mon. 348-26-----	45 49 40.07 70 22 24.38	250 01 57 85 52 06	Mon. 348-25----- Mon. 348-27-----	15.86 93.13

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 348-27	45 49 39.85 70 22 28.69	265 52 03 80 45 15	Mon. 348-26	93.13	Mon. 350-6	45 48 44.19 70 23 27.57	184 48 24 50 16 37	Mon. 350-5	40.39
			Mon. 348-28	82.90				Mon. 350-7	78.79
Mon. 348-28	45 49 39.42 70 22 32.48	260 45 12 60 49 26	Mon. 348-27	82.90	Mon. 350-7	45 48 42.56 70 23 30.38	230 16 35 48 53 47	Mon. 350-6	78.79
			Mon. 348-29	89.45				Mon. 351	443.25
Mon. 348-29	45 49 38.01 70 22 36.10	240 49 23 53 07 41	Mon. 348-28	89.45	Mon. 351	45 48 33.12 70 23 45.85	228 53 36 40 15 14	Mon. 350-7	443.25
			Mon. 348-30	67.63				Mon. 351-A	45.75
Mon. 348-30	45 49 36.70 70 22 38.60	233 07 39 32 57 59	Mon. 348-29	67.63	Mon. 351-A	45 48 31.99 70 23 47.22	220 15 13 40 15 13	Mon. 351	45.75
			Mon. 348-31	62.30				Mon. 351-B	19.61
Mon. 348-31	45 49 35.00 70 22 40.17	212 57 58 53 32 21	Mon. 348-30	62.30	Mon. 351-B	45 48 31.50 70 23 47.80	220 15 12 40 15 12	Mon. 351-A	19.61
			Mon. 348-32	134.00				Mon. 352	81.57
Mon. 348-32	45 49 32.42 70 22 45.16	233 32 17 50 53 45	Mon. 348-31	134.00	Mon. 352	45 48 29.49 70 23 50.24	220 15 10 22 24 04	Mon. 351-B	81.57
			Mon. 348-33	139.58				Mon. 352-1	95.46
Mon. 348-33	45 49 29.57 70 22 50.18	230 53 41 38 32 14	Mon. 348-32	139.58	Mon. 352-1	45 48 26.63 70 23 51.93	202 24 03 341 33 12	Mon. 352	95.46
			Mon. 348-34	103.73				Mon. 353	55.92
Mon. 348-34	45 49 26.94 70 22 53.18	230 53 41 32 05 49	Mon. 348-33	103.73	Mon. 353	45 48 24.91 70 23 51.11	161 33 12 341 44 42	Mon. 353-1	55.92
			Mon. 348-35	84.82				Mon. 353-1	70.81
Mon. 348-35	45 49 24.62 70 22 55.26	212 05 47 21 25 27	Mon. 348-34	84.82	Mon. 353-1	45 48 22.73 70 23 50.08	161 44 43 7 32 13	Mon. 353	70.81
			Mon. 348-36	68.72				Mon. 353-2	78.64
Mon. 348-36	45 49 22.54 70 22 56.43	201 25 26 60 07 09	Mon. 348-35	68.72	Mon. 353-2	45 48 20.21 70 23 50.56	187 32 13 22 48 48	Mon. 353-1	78.64
			Mon. 348-37	60.56				Mon. 353-3	73.65
Mon. 348-37	45 49 21.57 70 22 58.86	240 07 07 64 32 52	Mon. 348-36	60.56	Mon. 353-3	45 48 18.01 70 23 51.88	202 48 47 31 30 15	Mon. 353-2	73.65
			Mon. 348-38	88.26				Mon. 353-4	102.66
Mon. 348-38	45 49 19.60 70 23 01.83	226 32 50 61 24 39	Mon. 348-37	88.26	Mon. 353-4	45 48 15.17 70 23 54.36	211 30 13 1 24 04	Mon. 353-3	102.66
			Mon. 349	36.37				Mon. 353-5	39.20
Mon. 349	45 49 19.04 70 23 03.31	241 24 38 64 42 29	Mon. 348-38	36.37	Mon. 353-5	45 48 13.90 70 23 54.41	181 24 04 305 14 56	Mon. 353-4	39.20
			Mon. 349-1	29.98				Mon. 353-6	82.49
Mon. 349-1	45 49 18.62 70 23 04.56	244 42 28 38 06 16	Mon. 349	29.98	Mon. 353-6	45 48 12.36 70 23 51.29	125 14 57 312 31 56	Mon. 353-5	82.49
			Mon. 349-2	73.96				Mon. 353-7	133.89
Mon. 349-2	45 49 16.74 70 23 06.68	218 06 14 39 56 49	Mon. 349-1	73.96	Mon. 353-7	45 48 09.43 70 23 46.72	132 31 59 9 49 11	Mon. 353-6	133.89
			Mon. 349-3	54.91				Mon. 354	16.32
Mon. 349-3	45 49 15.37 70 23 08.31	219 56 48 54 18 38	Mon. 349-2	54.91	Mon. 354	45 48 08.91 70 23 46.85	189 49 11 15 45 26	Mon. 353-7	16.32
			Mon. 349-4	113.26				Mon. 354-1	40.48
Mon. 349-4	45 49 13.23 70 23 12.57	234 18 35 22 58 13	Mon. 349-3	113.26	Mon. 354-1	45 48 07.65 70 23 47.36	195 45 26 33 18 54	Mon. 354	40.48
			Mon. 349-5	53.86				Mon. 354-2	67.36
Mon. 349-5	45 49 11.63 70 23 13.55	202 58 12 46 56 17	Mon. 349-4	53.86	Mon. 354-2	45 48 05.83 70 23 49.07	213 18 53 5 48 12	Mon. 354-1	67.36
			Mon. 349-6	162.47				Mon. 354-3	180.56
Mon. 349-6	45 49 08.04 70 23 19.04	226 56 13 0 45 27	Mon. 349-5	162.47	Mon. 354-3	45 48 00.01 70 23 49.92	185 48 11 313 02 58	Mon. 354-2	180.56
			Mon. 349-7	90.83				Mon. 354-4	46.74
Mon. 349-7	45 49 05.09 70 23 19.10	180 45 27 8 24 16	Mon. 349-6	90.83	Mon. 354-4	45 47 58.97 70 23 48.34	133 02 59 286 57 55	Mon. 354-3	46.74
			Mon. 349-8	127.15				Mon. 354-5	40.90
Mon. 349-8	45 49 01.02 70 23 19.96	188 24 16 359 18 01	Mon. 349-7	127.15	Mon. 354-5	45 47 58.59 70 23 46.52	106 57 56 22 15 55	Mon. 354-4	40.90
			Mon. 349-9	73.84				Mon. 355	7.51
Mon. 349-9	45 48 58.63 70 23 19.92	179 18 01 322 05 44	Mon. 349-8	73.84	Mon. 355	45 47 58.36 70 23 46.66	202 15 55 22 08 27	Mon. 354-5	7.51
			Mon. 349-10	42.57				Mon. 355-1	95.28
Mon. 349-10	45 48 57.54 70 23 18.71	142 05 45 351 12 54	Mon. 349-9	42.57	Mon. 355-1	45 47 55.50 70 23 48.32	202 08 26 40 04 31	Mon. 355	95.28
			Mon. 349-11	51.47				Mon. 355-2	139.25
Mon. 349-11	45 48 55.89 70 23 18.34	171 12 54 358 18 48	Mon. 349-10	51.47	Mon. 355-2	45 47 52.05 70 23 52.47	220 04 28 46 16 03	Mon. 355-1	139.25
			Mon. 349-12	120.13				Mon. 355-3	172.24
Mon. 349-12	45 48 52.00 70 23 18.18	178 18 48 40 44 24	Mon. 349-11	120.13	Mon. 355-3	45 47 48.20 70 23 58.23	226 15 59 71 04 18	Mon. 355-2	172.24
			Mon. 350	12.70				Mon. 355-4	93.36
Mon. 350	45 48 51.69 70 23 18.56	220 44 24 31 35 12	Mon. 349-12	12.70	Mon. 355-4	45 47 47.22 70 24 02.32	251 04 15 66 37 12	Mon. 355-3	93.36
			Mon. 350-1	45.78				Mon. 355-5	111.66
Mon. 350-1	45 48 50.43 70 23 19.68	211 35 11 54 11 35	Mon. 350	45.78	Mon. 355-5	45 47 45.78 70 24 07.07	246 37 09 92 41 16	Mon. 355-4	111.66
			Mon. 350-2	28.26				Mon. 355-6	92.50
Mon. 350-2	45 48 49.89 70 23 20.74	234 11 34 77 35 47	Mon. 350-1	28.26	Mon. 355-6	45 47 45.92 70 24 11.35	272 41 13 90 46 08	Mon. 355-5	92.50
			Mon. 350-3	32.01				Mon. 355-7	18.71
Mon. 350-3	45 48 49.67 70 23 22.18	257 35 46 63 51 42	Mon. 350-2	32.01	Mon. 355-7	45 47 45.93 70 24 12.21	270 46 08 123 48 29	Mon. 355-6	18.71
			Mon. 350-4	108.25				Mon. 356	37.29
Mon. 350-4	45 48 48.12 70 23 26.69	243 51 39 10 57 30	Mon. 350-3	108.25	Mon. 356	45 47 46.60 70 24 13.65	303 48 28 111 26 33	Mon. 355-7	37.29
			Mon. 350-5	82.75				Mon. 356-1	25.37
Mon. 350-5	45 48 45.49 70 23 27.42	190 57 30 4 48 24	Mon. 350-4	82.75	Mon. 356-1	45 47 46.90 70 24 14.74	291 26 32 91 00 01	Mon. 356	25.37
			Mon. 350-6	40.39				Mon. 356-2	32.17

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 356-2-----	45 47 46.92 70 24 16.23	271 00 00 117 56 26	Mon. 356-1----- Mon. 356-3-----	32.17 125.00	Mon. 359-8-----	45 47 07.58 70 24 58.80	182 56 08 333 39 09	Mon. 359-7----- Mon. 359-9-----	84.77 107.04
Mon. 356-3-----	45 47 48.82 70 24 21.34	297 56 22 136 45 32	Mon. 356-2----- Mon. 356-4-----	125.00 151.86	Mon. 359-9-----	45 47 04.48 70 24 56.60	153 39 11 292 45 47	Mon. 359-8----- Mon. 359-10-----	107.04 27.59
Mon. 356-4-----	45 47 52.40 70 24 26.16	316 45 29 69 28 53	Mon. 356-3----- Mon. 356-5-----	151.86 48.74	Mon. 359-10-----	45 47 04.13 70 24 55.42	112 45 48 256 43 00	Mon. 359-9----- Mon. 360-----	27.59 77.80
Mon. 356-5-----	45 47 51.84 70 24 28.27	249 28 51 91 20 43	Mon. 356-4----- Mon. 356-6-----	48.74 88.85	Mon. 360-----	45 47 04.71 70 24 51.92	76 43 02 257 27 34	Mon. 359-10----- Mon. 360-1-----	77.80 47.42
Mon. 356-6-----	45 47 51.91 70 24 32.39	271 20 40 58 35 49	Mon. 356-5----- Mon. 356-7-----	88.85 64.62	Mon. 360-1-----	45 47 05.04 70 24 49.77	77 27 36 200 50 41	Mon. 360----- Mon. 360-2-----	47.42 53.89
Mon. 356-7-----	45 47 50.82 70 24 34.94	238 35 47 70 40 19	Mon. 356-6----- Mon. 356-8-----	64.62 72.46	Mon. 360-2-----	45 47 04.71 70 24 47.32	100 50 43 262 18 48	Mon. 360-1----- Mon. 360-3-----	53.89 72.82
Mon. 356-8-----	45 47 50.04 70 24 38.11	250 40 17 57 13 15	Mon. 356-7----- Mon. 357-----	72.46 41.03	Mon. 360-3-----	45 47 05.03 70 24 43.98	82 18 50 260 13 38	Mon. 360-2----- Mon. 360-4-----	72.82 46.70
Mon. 357-----	45 47 49.33 70 24 39.70	237 13 14 61 29 10	Mon. 356-8----- Mon. 357-1-----	41.03 70.96	Mon. 360-4-----	45 47 05.29 70 24 41.85	80 13 40 308 28 22	Mon. 360-3----- Mon. 360-5-----	46.70 84.19
Mon. 357-1-----	45 47 48.23 70 24 42.59	241 29 08 68 54 02	Mon. 357----- Mon. 357-2-----	70.96 209.21	Mon. 360-5-----	45 47 03.59 70 24 38.80	128 28 24 349 13 36	Mon. 360-4----- Mon. 360-6-----	84.19 30.14
Mon. 357-2-----	45 47 45.79 70 24 51.63	248 53 55 73 57 26	Mon. 357-1----- Mon. 357-3-----	209.21 111.69	Mon. 360-6-----	45 47 02.63 70 24 38.54	169 13 36 334 17 00	Mon. 360-5----- Mon. 360-7-----	30.14 60.74
Mon. 357-3-----	45 47 44.79 70 24 56.60	253 57 22 93 06 24	Mon. 357-2----- Mon. 357-4-----	111.69 91.15	Mon. 360-7-----	45 47 00.86 70 24 37.32	154 17 01 320 56 07	Mon. 360-6----- Mon. 360-8-----	60.74 33.14
Mon. 357-4-----	45 47 44.95 70 25 00.81	273 06 21 64 28 53	Mon. 357-3----- Mon. 357-5-----	91.15 49.28	Mon. 360-8-----	45 47 00.02 70 24 36.35	140 56 08 336 13 26	Mon. 360-7----- Mon. 360-9-----	33.14 73.93
Mon. 357-5-----	45 47 44.26 70 25 02.87	244 28 52 25 55 51	Mon. 357-4----- Mon. 358-----	49.28 19.03	Mon. 360-9-----	45 46 57.83 70 24 34.97	156 13 27 346 24 09	Mon. 360-8----- Mon. 360-10-----	73.93 102.08
Mon. 358-----	45 47 43.71 70 25 03.26	205 55 51 21 36 12	Mon. 357-5----- Mon. 358-1-----	19.03 100.39	Mon. 360-10-----	45 46 54.62 70 24 33.86	166 24 10 1 28 35	Mon. 360-9----- Mon. 360-11-----	102.08 85.05
Mon. 358-1-----	45 47 40.69 70 25 04.97	201 36 11 23 44 52	Mon. 358----- Mon. 358-2-----	100.39 68.45	Mon. 360-11-----	45 46 51.86 70 24 33.96	181 28 35 320 25 24	Mon. 360-10----- Mon. 360-12-----	85.05 68.79
Mon. 358-2-----	45 47 38.66 70 25 06.24	203 44 51 314 28 57	Mon. 358-1----- Mon. 358-3-----	68.45 85.95	Mon. 360-12-----	45 46 50.15 70 24 31.94	140 25 25 334 13 14	Mon. 360-11----- Mon. 361-----	68.79 16.99
Mon. 358-3-----	45 47 36.71 70 25 03.41	134 28 59 250 29 26	Mon. 358-2----- Mon. 358-4-----	85.95 32.02	Mon. 361-----	45 46 49.65 70 24 31.59	154 13 14 6 23 23	Mon. 360-12----- Mon. 361-1-----	16.99 21.09
Mon. 358-4-----	45 47 37.05 70 25 02.01	70 29 27 334 16 13	Mon. 358-3----- Mon. 358-5-----	32.02 47.01	Mon. 361-1-----	45 46 48.97 70 24 31.70	186 23 23 18 32 23	Mon. 361----- Mon. 361-2-----	21.09 32.10
Mon. 358-5-----	45 47 35.68 70 25 01.06	154 16 14 334 06 19	Mon. 358-4----- Mon. 358-6-----	47.01 115.58	Mon. 361-2-----	45 46 47.99 70 24 32.18	198 32 23 328 11 22	Mon. 361-1----- Mon. 361-3-----	32.10 69.03
Mon. 358-6-----	45 47 32.31 70 24 58.73	154 06 21 312 44 07	Mon. 358-5----- Mon. 358-7-----	115.58 32.84	Mon. 361-3-----	45 46 46.09 70 24 30.49	148 11 23 339 30 20	Mon. 361-2----- Mon. 361-4-----	69.03 108.13
Mon. 358-7-----	45 47 31.59 70 24 57.61	132 44 08 321 08 16	Mon. 358-6----- Mon. 358-8-----	32.84 46.09	Mon. 361-4-----	45 46 42.81 70 24 28.74	159 30 21 341 33 14	Mon. 361-3----- Mon. 361-5-----	108.13 58.29
Mon. 358-8-----	45 47 30.43 70 24 56.27	141 08 17 330 54 26	Mon. 358-7----- Mon. 358-9-----	46.09 42.01	Mon. 361-5-----	45 46 41.01 70 24 27.88	161 33 14 334 39 05	Mon. 361-4----- Mon. 362-----	58.29 72.32
Mon. 358-9-----	45 47 29.24 70 24 55.32	150 54 26 347 15 18	Mon. 358-8----- Mon. 359-----	42.01 72.89	Mon. 362-----	45 46 38.90 70 24 26.45	154 39 06 10 05 27	Mon. 361-5----- Mon. 362-1-----	72.32 3.20
Mon. 359-----	45 47 26.94 70 24 54.58	167 15 18 345 20 22	Mon. 358-9----- Mon. 359-1-----	72.89 64.53	Mon. 362-1-----	45 46 38.80 70 24 26.48	190 05 27 305 58 59	Mon. 362----- Mon. 362-2-----	3.20 51.19
Mon. 359-1-----	45 47 24.92 70 24 53.82	165 20 23 16 27 22	Mon. 359----- Mon. 359-2-----	64.53 93.64	Mon. 362-2-----	45 46 37.82 70 24 24.56	125 59 00 299 23 33	Mon. 362-1----- Mon. 362-3-----	51.19 42.82
Mon. 359-2-----	45 47 22.01 70 24 55.05	196 27 21 1 14 01	Mon. 359-1----- Mon. 359-3-----	93.64 68.29	Mon. 362-3-----	45 46 37.14 70 24 22.83	119 23 34 347 14 09	Mon. 362-2----- Mon. 362-4-----	42.82 41.81
Mon. 359-3-----	45 47 19.80 70 24 55.12	181 14 01 13 08 10	Mon. 359-2----- Mon. 359-4-----	68.29 159.21	Mon. 362-4-----	45 46 35.82 70 24 22.40	167 14 09 24 34 46	Mon. 362-3----- Mon. 362-5-----	41.81 55.95
Mon. 359-4-----	45 47 14.78 70 24 56.80	193 08 09 353 33 05	Mon. 359-3----- Mon. 359-5-----	159.21 32.04	Mon. 362-5-----	45 46 34.17 70 24 23.48	204 34 45 40 45 26	Mon. 362-4----- Mon. 362-6-----	55.95 42.73
Mon. 359-5-----	45 47 13.74 70 24 56.63	173 33 05 356 52 26	Mon. 359-4----- Mon. 359-6-----	32.04 33.90	Mon. 362-6-----	45 46 33.12 70 24 24.77	220 45 25 17 17 09	Mon. 362-5----- Mon. 362-7-----	42.73 52.35
Mon. 359-6-----	45 47 12.65 70 24 56.54	176 52 26 31 44 58	Mon. 359-5----- Mon. 359-7-----	33.90 84.37	Mon. 362-7-----	45 46 31.50 70 24 25.49	197 17 08 27 48 56	Mon. 362-6----- Mon. 362-8-----	52.35 89.66
Mon. 359-7-----	45 47 10.32 70 24 58.60	211 44 57 2 56 08	Mon. 359-6----- Mon. 359-8-----	84.37 84.77	Mon. 362-8-----	45 46 28.94 70 24 27.43	207 48 55 13 26 49	Mon. 362-7----- Mon. 362-9-----	89.66 88.07



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 362-9-----	45 46 26.16 70 24 28.38	193 26 48 23 34 48	Mon. 362-8----- Mon. 363-----	88.07 58.52	Mon. 366-4-----	45 45 26.06 70 23 56.25	99 12 37 270 11 43	Mon. 366-3----- Mon. 366-5-----	141.84 67.49
Mon. 363-----	45 46 24.42 70 24 29.46	203 34 47 21 34 30	Mon. 362-9----- Mon. 363-1-----	58.52 16.70	Mon. 366-5-----	45 45 26.06 70 23 53.13	90 11 45 293 34 07	Mon. 366-4----- Mon. 366-6-----	67.49 137.39
Mon. 363-1-----	45 46 23.92 70 24 29.75	201 34 30 353 12 30	Mon. 363----- Mon. 363-2-----	16.70 63.87	Mon. 366-6-----	45 45 24.28 70 23 47.30	113 34 11 327 32 44	Mon. 366-5----- Mon. 366-7-----	137.39 38.56
Mon. 363-2-----	45 46 21.87 70 24 29.40	173 12 30 347 01 31	Mon. 363-1----- Mon. 363-3-----	63.87 52.12	Mon. 366-7-----	45 45 23.22 70 23 46.34	147 32 45 341 43 28	Mon. 366-6----- Mon. 366-8-----	38.56 46.32
Mon. 363-3-----	45 46 20.22 70 24 28.85	167 01 31 316 14 32	Mon. 363-2----- Mon. 363-4-----	52.12 83.10	Mon. 366-8-----	45 45 21.80 70 23 45.67	161 43 28 320 17 06	Mon. 366-9----- Mon. 366-9-----	46.32 65.42
Mon. 363-4-----	45 46 18.28 70 24 26.19	136 14 34 318 41 36	Mon. 363-3----- Mon. 363-5-----	83.10 67.55	Mon. 366-9-----	45 45 20.17 70 23 43.74	140 17 07 345 31 21	Mon. 366-8----- Mon. 366-10-----	65.42 70.10
Mon. 363-5-----	45 46 16.64 70 24 24.13	138 41 37 340 06 39	Mon. 363-4----- Mon. 363-6-----	67.55 44.57	Mon. 366-10-----	45 45 17.97 70 23 42.92	165 31 22 326 42 29	Mon. 366-9----- Mon. 366-11-----	70.10 35.78
Mon. 363-6-----	45 46 15.28 70 24 23.43	160 06 40 333 08 42	Mon. 363-5----- Mon. 363-7-----	44.57 50.71	Mon. 366-11-----	45 45 17.00 70 23 42.02	146 42 30 311 14 38	Mon. 366-10----- Mon. 366-12-----	35.78 50.47
Mon. 363-7-----	45 46 13.81 70 24 22.37	153 08 43 344 59 45	Mon. 363-6----- Mon. 363-8-----	50.71 45.97	Mon. 366-12-----	45 45 15.92 70 23 40.26	131 14 39 318 45 22	Mon. 366-11----- Mon. 367-----	50.47 13.50
Mon. 363-8-----	45 46 12.37 70 24 21.82	164 59 45 45 20 48	Mon. 363-7----- Mon. 363-9-----	45.97 58.33	Mon. 367-----	45 45 15.59 70 23 39.85	138 45 22 325 40 18	Mon. 366-12----- Mon. 367-1-----	13.50 16.42
Mon. 363-9-----	45 46 11.05 70 24 23.74	225 20 47 14 03 49	Mon. 363-8----- Mon. 363-10-----	58.33 122.14	Mon. 367-1-----	45 45 15.15 70 23 39.42	145 40 18 313 50 56	Mon. 367----- Mon. 367-2-----	16.42 180.79
Mon. 363-10-----	45 46 07.21 70 24 25.11	194 03 48 358 00 52	Mon. 363-9----- Mon. 364-----	122.14 33.21	Mon. 367-2-----	45 45 11.10 70 23 33.39	133 51 00 320 52 26	Mon. 367-1----- Mon. 367-3-----	180.79 82.22
Mon. 364-----	45 46 06.13 70 24 25.06	178 00 52 358 24 17	Mon. 363-10----- Mon. 364-1-----	33.21 70.32	Mon. 367-3-----	45 45 09.03 70 23 30.99	140 52 28 326 27 51	Mon. 367-2----- Mon. 367-4-----	82.22 64.96
Mon. 364-1-----	45 46 03.86 70 24 24.97	178 24 17 11 46 35	Mon. 364----- Mon. 364-2-----	70.32 47.40	Mon. 367-4-----	45 45 07.28 70 23 29.33	146 27 52 298 47 49	Mon. 367-3----- Mon. 367-5-----	64.96 18.81
Mon. 364-2-----	45 46 02.35 70 24 25.42	191 46 35 0 27 49	Mon. 364-1----- Mon. 364-3-----	47.40 139.04	Mon. 367-5-----	45 45 06.98 70 23 28.56	118 47 50 321 49 58	Mon. 367-4----- Mon. 367-6-----	18.81 97.24
Mon. 364-3-----	45 45 57.85 70 24 25.47	180 27 49 355 06 53	Mon. 364-2----- Mon. 364-4-----	139.04 143.33	Mon. 367-6-----	45 45 04.51 70 23 25.78	141 50 00 310 51 52	Mon. 367-5----- Mon. 367-7-----	97.24 99.19
Mon. 364-4-----	45 45 53.22 70 24 24.90	175 06 53 28 54 47	Mon. 364-3----- Mon. 364-5-----	143.33 106.27	Mon. 367-7-----	45 45 02.41 70 23 22.32	130 51 54 314 40 43	Mon. 367-6----- Mon. 367-8-----	99.19 55.45
Mon. 364-5-----	45 45 50.21 70 24 27.28	208 54 45 3 01 31	Mon. 364-4----- Mon. 365-----	106.27 27.39	Mon. 367-8-----	45 45 01.14 70 23 20.49	134 40 44 357 11 43	Mon. 367-7----- Mon. 367-9-----	55.45 58.00
Mon. 365-----	45 45 49.33 70 24 27.35	183 01 31 9 57 08	Mon. 364-5----- Mon. 365-1-----	27.39 42.25	Mon. 367-9-----	45 44 59.27 70 23 20.36	177 11 43 24 27 17	Mon. 367-8----- Mon. 367-10-----	58.00 38.29
Mon. 365-1-----	45 45 47.98 70 24 27.69	189 57 08 356 01 28	Mon. 365----- Mon. 365-2-----	42.25 77.70	Mon. 367-10-----	45 44 58.14 70 23 21.09	204 27 16 16 38 00	Mon. 367-9----- Mon. 367-11-----	38.29 26.81
Mon. 365-2-----	45 45 45.47 70 24 27.44	176 01 28 324 37 54	Mon. 365-1----- Mon. 365-3-----	77.70 73.89	Mon. 367-11-----	45 44 57.31 70 23 21.45	196 38 00 340 49 14	Mon. 367-10----- Mon. 367-12-----	26.81 30.94
Mon. 365-3-----	45 45 43.52 70 24 25.46	144 37 55 309 17 39	Mon. 365-2----- Mon. 365-4-----	73.89 103.43	Mon. 367-12-----	45 44 56.36 70 23 20.98	160 49 14 314 57 39	Mon. 367-11----- Mon. 367-13-----	30.94 59.18
Mon. 365-4-----	45 45 41.39 70 24 21.75	129 17 42 327 50 45	Mon. 365-3----- Mon. 365-5-----	103.43 55.99	Mon. 367-13-----	45 44 55.00 70 23 19.04	134 57 40 8 42 33	Mon. 367-12----- Mon. 367-14-----	59.18 28.31
Mon. 365-5-----	45 45 39.86 70 24 20.38	147 50 46 322 15 07	Mon. 365-4----- Mon. 365-6-----	55.99 203.46	Mon. 367-14-----	45 44 54.10 70 23 19.24	188 42 33 34 35 01	Mon. 367-13----- Mon. 367-15-----	28.31 57.19
Mon. 365-6-----	45 45 34.65 70 24 14.61	142 15 11 324 09 50	Mon. 365-5----- Mon. 365-7-----	203.46 72.26	Mon. 367-15-----	45 44 52.57 70 23 20.74	214 35 00 26 37 27	Mon. 367-14----- Mon. 367-16-----	57.19 62.19
Mon. 365-7-----	45 45 32.75 70 24 12.65	144 09 51 310 58 06	Mon. 365-6----- Mon. 365-8-----	72.26 42.25	Mon. 367-16-----	45 44 50.77 70 23 22.03	206 37 26 32 20 33	Mon. 367-15----- Mon. 368-----	62.19 42.57
Mon. 365-8-----	45 45 31.85 70 24 11.18	130 58 07 316 32 34	Mon. 365-7----- Mon. 366-----	42.25 37.09	Mon. 368-----	45 44 49.60 70 23 23.09	212 20 32 47 59 53	Mon. 367-16----- Mon. 368-1-----	42.57 126.20
Mon. 366-----	45 45 30.98 70 24 10.00	136 32 35 319 35 47	Mon. 365-8----- Mon. 366-1-----	37.09 112.57	Mon. 368-1-----	45 44 46.87 70 23 27.42	227 59 50 62 15 14	Mon. 368----- Mon. 368-2-----	126.20 63.27
Mon. 366-1-----	45 45 28.20 70 24 06.62	139 35 49 318 22 37	Mon. 366----- Mon. 366-2-----	112.57 54.13	Mon. 368-2-----	45 44 45.92 70 23 30.01	242 15 12 68 50 51	Mon. 368-1----- Mon. 368-3-----	63.27 82.54
Mon. 366-2-----	45 45 26.89 70 24 04.96	138 22 38 273 32 07	Mon. 366-1----- Mon. 366-3-----	54.13 48.30	Mon. 368-3-----	45 44 44.95 70 23 33.58	248 50 48 12 49 01	Mon. 368-2----- Mon. 368-4-----	82.54 20.17
Mon. 366-3-----	45 45 26.80 70 24 02.73	93 32 09 279 12 32	Mon. 366-2----- Mon. 366-4-----	48.30 141.84	Mon. 368-4-----	45 44 44.31 70 23 33.78	192 49 01 33 08 49	Mon. 368-3----- Mon. 368-5-----	20.17 40.53

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° / ' "	° / ' "				° / ' "	° / ' "		
Mon. 368-5-----	45 44 43.22 70 23 34.81	213 08 48 19 37 29	Mon. 368-4----- Mon. 368-6-----	40.53 33.94	Mon. 369-11-----	45 44 15.40 70 23 27.18	97 24 56 255 57 21	Mon. 369-10----- Mon. 369-12-----	50.57 49.29
Mon. 368-6-----	45 44 42.18 70 23 35.33	199 37 29 47 24 09	Mon. 368-5----- Mon. 368-7-----	33.94 47.13	Mon. 369-12-----	45 44 15.79 70 23 24.97	75 57 23 306 26 36	Mon. 369-11----- Mon. 369-13-----	49.29 29.08
Mon. 368-7-----	45 44 41.15 70 23 36.94	227 24 08 28 21 40	Mon. 368-6----- Mon. 368-8-----	47.13 19.13	Mon. 369-13-----	45 44 15.23 70 23 23.89	126 26 37 51 23 20	Mon. 369-12----- Mon. 369-14-----	29.08 42.58
Mon. 368-8-----	45 44 40.60 70 23 37.36	208 21 40 345 29 30	Mon. 368-7----- Mon. 368-9-----	19.13 23.52	Mon. 369-14-----	45 44 14.37 70 23 25.42	231 23 19 350 15 14	Mon. 369-13----- Mon. 369-15-----	42.58 52.10
Mon. 368-9-----	45 44 39.86 70 23 37.09	165 29 30 50 25 31	Mon. 368-8----- Mon. 368-10-----	23.52 23.97	Mon. 369-15-----	45 44 13.48 70 23 27.48	238 15 13 349 11 32	Mon. 369-14----- Mon. 370-----	52.10 70.95
Mon. 368-10-----	45 44 39.37 70 23 37.94	230 25 30 92 42 49	Mon. 368-9----- Mon. 368-11-----	23.97 35.61	Mon. 370-----	45 44 11.22 70 23 26.86	169 11 32 350 39 45	Mon. 369-15----- Mon. 370-1-----	70.95 27.16
Mon. 368-11-----	45 44 39.42 70 23 39.59	272 42 48 70 07 48	Mon. 368-10----- Mon. 368-12-----	35.61 37.93	Mon. 370-1-----	45 44 10.35 70 23 26.66	170 39 45 290 35 58	Mon. 370----- Mon. 370-2-----	27.16 65.91
Mon. 368-12-----	45 44 39.01 70 23 41.24	250 07 47 10 01 40	Mon. 368-11----- Mon. 368-13-----	37.93 34.83	Mon. 370-2-----	45 44 09.60 70 23 23.80	110 36 00 268 43 59	Mon. 370-1----- Mon. 370-3-----	65.91 95.39
Mon. 368-13-----	45 44 37.90 70 23 41.52	190 01 40 46 55 56	Mon. 368-12----- Mon. 368-14-----	34.83 25.60	Mon. 370-3-----	45 44 09.67 70 23 19.39	88 44 02 238 40 58	Mon. 370-2----- Mon. 370-4-----	95.39 53.24
Mon. 368-14-----	45 44 37.33 70 23 42.38	226 55 55 351 06 22	Mon. 368-13----- Mon. 368-15-----	25.60 76.92	Mon. 370-4-----	45 44 10.56 70 23 17.29	58 41 00 217 30 29	Mon. 370-3----- Mon. 370-5-----	53.24 28.61
Mon. 368-15-----	45 44 34.87 70 23 41.83	171 06 22 34 07 53	Mon. 368-14----- Mon. 368-16-----	76.92 28.01	Mon. 370-5-----	45 44 11.30 70 23 16.48	37 30 30 251 39 50	Mon. 370-4----- Mon. 370-6-----	28.61 26.80
Mon. 368-16-----	45 44 34.12 70 23 42.56	214 07 52 3 42 10	Mon. 368-15----- Mon. 368-17-----	28.01 25.63	Mon. 370-6-----	45 44 11.57 70 23 15.30	71 39 51 297 37 12	Mon. 370-5----- Mon. 370-7-----	26.80 57.99
Mon. 368-17-----	45 44 33.29 70 23 42.64	183 42 10 330 57 57	Mon. 368-16----- Mon. 368-18-----	25.63 49.04	Mon. 370-7-----	45 44 10.70 70 23 12.93	117 37 14 265 58 10	Mon. 370-6----- Mon. 370-8-----	57.99 37.56
Mon. 368-18-----	45 44 31.90 70 23 41.53	150 57 58 281 06 20	Mon. 368-17----- Mon. 368-19-----	49.04 81.15	Mon. 370-8-----	45 44 10.79 70 23 11.20	85 58 11 260 11 11	Mon. 370-7----- Mon. 370-9-----	37.56 31.85
Mon. 368-19-----	45 44 31.39 70 23 37.85	101 06 23 334 25 10	Mon. 368-18----- Mon. 368-20-----	81.15 59.26	Mon. 370-9-----	45 44 10.96 70 23 09.74	80 11 12 296 33 23	Mon. 370-8----- Mon. 370-10-----	31.85 22.24
Mon. 368-20-----	45 44 29.66 70 23 36.67	154 25 11 56 17 15	Mon. 368-19----- Mon. 368-21-----	59.26 71.81	Mon. 370-10-----	45 44 10.64 70 23 08.82	116 33 23 129 12 54	Mon. 370-9----- Mon. 371-----	22.24 46.46
Mon. 368-21-----	45 44 28.37 70 23 39.43	236 17 13 8 23 57	Mon. 368-20----- Mon. 368-22-----	71.81 34.02	Mon. 371-----	45 44 09.35 70 23 07.72	149 12 55 330 52 12	Mon. 370-10----- Mon. 371-1-----	46.46 13.31
Mon. 368-22-----	45 44 27.28 70 23 39.66	188 23 57 9 58 03	Mon. 368-21----- Mon. 368-23-----	34.02 29.40	Mon. 371-1-----	45 44 08.97 70 23 07.42	150 32 12 55 00 23	Mon. 371----- Mon. 371-2-----	13.31 65.06
Mon. 368-23-----	45 44 26.34 70 23 39.90	189 58 03 6 33 03	Mon. 368-22----- Mon. 368-24-----	29.40 50.39	Mon. 371-2-----	45 44 07.77 70 23 09.88	235 00 21 41 01 54	Mon. 371-1----- Mon. 371-3-----	65.06 43.27
Mon. 368-24-----	45 44 24.72 70 23 40.16	186 33 03 332 12 43	Mon. 368-23----- Mon. 369-----	50.39 38.21	Mon. 371-3-----	45 44 06.71 70 23 11.20	221 01 53 1 17 00	Mon. 371-2----- Mon. 371-4-----	43.27 52.01
Mon. 369-----	45 44 23.63 70 23 39.34	152 12 44 323 05 54	Mon. 368-24----- Mon. 369-1-----	38.21 29.30	Mon. 371-4-----	45 44 05.02 70 23 11.25	181 17 00 300 30 28	Mon. 371-3----- Mon. 371-5-----	52.01 44.32
Mon. 369-1-----	45 44 22.87 70 23 38.53	143 05 55 294 17 03	Mon. 369----- Mon. 369-2-----	29.30 24.13	Mon. 371-5-----	45 44 04.30 70 23 09.49	120 30 29 244 42 14	Mon. 371-4----- Mon. 371-6-----	44.32 35.19
Mon. 369-2-----	45 44 22.55 70 23 37.51	114 17 03 275 25 53	Mon. 369-1----- Mon. 369-3-----	24.13 60.18	Mon. 371-6-----	45 44 04.78 70 23 08.02	64 42 15 243 16 50	Mon. 371-5----- Mon. 371-7-----	35.19 55.10
Mon. 369-3-----	45 44 22.36 70 23 34.74	95 25 55 293 02 38	Mon. 369-2----- Mon. 369-4-----	60.18 40.56	Mon. 371-7-----	45 44 05.58 70 23 05.74	63 16 52 283 58 29	Mon. 371-6----- Mon. 371-8-----	55.10 23.86
Mon. 369-4-----	45 44 21.85 70 23 33.01	113 02 39 329 54 58	Mon. 369-3----- Mon. 369-5-----	40.56 15.27	Mon. 371-8-----	45 44 05.40 70 23 04.67	103 58 30 320 23 07	Mon. 371-7----- Mon. 371-9-----	23.86 23.99
Mon. 369-5-----	45 44 21.42 70 23 32.66	149 54 58 32 02 59	Mon. 369-4----- Mon. 369-6-----	15.27 86.07	Mon. 371-9-----	45 44 04.80 70 23 03.96	140 23 08 16 46 44	Mon. 371-8----- Mon. 371-10-----	23.99 30.88
Mon. 369-6-----	45 44 19.06 70 23 34.77	212 02 57 327 48 46	Mon. 369-5----- Mon. 369-7-----	86.07 59.11	Mon. 371-10-----	45 44 03.84 70 23 04.37	196 46 44 36 09 18	Mon. 371-9----- Mon. 371-11-----	30.88 37.86
Mon. 369-7-----	45 44 17.44 70 23 33.31	147 48 47 290 31 30	Mon. 369-6----- Mon. 369-8-----	59.11 20.00	Mon. 371-11-----	45 44 02.85 70 23 05.41	216 09 17 60 15 50	Mon. 371-10----- Mon. 371-12-----	37.86 103.09
Mon. 369-8-----	45 44 17.21 70 23 32.45	110 31 31 296 33 08	Mon. 369-7----- Mon. 369-9-----	20.00 50.47	Mon. 371-12-----	45 44 01.20 70 23 09.55	240 15 47 82 13 16	Mon. 371-11----- Mon. 371-13-----	103.09 21.06
Mon. 369-9-----	45 44 16.48 70 23 30.36	116 33 09 325 15 04	Mon. 369-8----- Mon. 369-10-----	50.47 32.61	Mon. 371-13-----	45 44 01.10 70 23 10.51	262 13 15 34 45 43	Mon. 371-12----- Mon. 371-14-----	21.06 13.51
Mon. 369-10-----	45 44 15.61 70 23 29.50	145 15 05 277 24 54	Mon. 369-9----- Mon. 369-11-----	32.61 50.57	Mon. 371-14-----	45 44 00.74 70 23 10.87	214 45 43 350 51 11	Mon. 371-13----- Mon. 371-15-----	13.51 57.39

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
Mon. 371-15-----	° ' " 45 43 58.91 70 23 10.44	° ' " 170 51 11 16 10 36	Mon. 371-14----- Mon. 371-16-----	57.39 34.47	Mon. 374-16-----	° ' " 45 43 24.20 70 23 53.30	° ' " 173 01 41 27 26 38	Mon. 374-15----- Mon. 374-17-----	105.38 24.27
Mon. 371-16-----	° ' " 45 43 57.84 70 23 10.89	° ' " 196 10 36 45 02 17	Mon. 371-15----- Mon. 371-17-----	34.47 63.14	Mon. 374-17-----	° ' " 45 43 23.50 70 23 53.81	° ' " 207 26 38 62 36 33	Mon. 374-16----- Mon. 374-18-----	24.27 96.20
Mon. 371-17-----	° ' " 45 43 56.39 70 23 12.96	° ' " 225 02 16 46 21 19	Mon. 371-16----- Mon. 372-----	63.14 19.59	Mon. 374-18-----	° ' " 45 43 22.07 70 23 57.76	° ' " 242 36 30 34 24 18	Mon. 374-17----- Mon. 374-19-----	96.20 53.80
Mon. 372-----	° ' " 45 43 55.95 70 23 13.61	° ' " 226 21 19 52 19 19	Mon. 371-17----- Mon. 372-1-----	19.59 6.01	Mon. 374-19-----	° ' " 45 43 20.63 70 23 59.17	° ' " 214 24 17 54 07 01	Mon. 374-18----- Mon. 374-20-----	53.80 76.78
Mon. 372-1-----	° ' " 45 43 55.83 70 23 13.83	° ' " 232 19 19 26 43 33	Mon. 372----- Mon. 372-2-----	6.01 79.21	Mon. 374-20-----	° ' " 45 43 19.17 70 24 02.05	° ' " 234 06 59 63 49 37	Mon. 374-19----- Mon. 374-21-----	76.78 56.38
Mon. 372-2-----	° ' " 45 43 53.54 70 23 15.48	° ' " 206 43 32 42 24 15	Mon. 372-1----- Mon. 372-3-----	79.21 40.04	Mon. 374-21-----	° ' " 45 43 18.36 70 24 04.39	° ' " 243 49 35 320 42 09	Mon. 374-20----- Mon. 374-22-----	56.38 51.73
Mon. 372-3-----	° ' " 45 43 52.58 70 23 16.73	° ' " 222 24 14 36 08 57	Mon. 372-2----- Mon. 373-----	40.04 231.95	Mon. 374-22-----	° ' " 45 43 17.07 70 24 02.87	° ' " 140 42 10 296 16 42	Mon. 374-21----- Mon. 374-23-----	51.73 34.40
Mon. 373-----	° ' " 45 43 46.52 70 23 23.06	° ' " 216 08 52 34 27 58	Mon. 372-3----- Mon. 373-1-----	231.95 132.79	Mon. 374-23-----	° ' " 45 43 16.58 70 24 01.44	° ' " 116 16 43 330 37 14	Mon. 374-22----- Mon. 374-24-----	34.40 44.58
Mon. 373-1-----	° ' " 45 43 42.97 70 23 26.53	° ' " 214 27 55 85 48 26	Mon. 373----- Mon. 373-2-----	132.79 82.09	Mon. 374-24-----	° ' " 45 43 15.32 70 24 00.43	° ' " 150 37 15 5 34 43	Mon. 374-23----- Mon. 374-25-----	44.58 33.23
Mon. 373-2-----	° ' " 45 43 42.78 70 23 30.32	° ' " 265 48 23 136 04 58	Mon. 373-1----- Mon. 373-3-----	82.09 42.17	Mon. 374-25-----	° ' " 45 43 14.25 70 24 00.58	° ' " 185 34 43 62 26 09	Mon. 374-24----- Mon. 374-26-----	33.23 43.87
Mon. 373-3-----	° ' " 45 43 43.76 70 23 31.67	° ' " 316 04 57 106 22 15	Mon. 373-2----- Mon. 373-4-----	42.17 34.95	Mon. 374-26-----	° ' " 45 43 13.59 70 24 02.38	° ' " 242 26 08 17 37 31	Mon. 374-25----- Mon. 374-27-----	43.87 72.01
Mon. 373-4-----	° ' " 45 43 44.08 70 23 33.22	° ' " 286 22 14 140 55 21	Mon. 373-3----- Mon. 373-5-----	34.95 62.91	Mon. 374-27-----	° ' " 45 43 11.36 70 24 03.39	° ' " 197 37 30 78 26 46	Mon. 374-26----- Mon. 375-----	72.01 49.84
Mon. 373-5-----	° ' " 45 43 45.66 70 23 35.06	° ' " 320 55 20 109 55 47	Mon. 373-4----- Mon. 373-6-----	62.91 35.71	Mon. 375-----	° ' " 45 43 11.04 70 24 05.65	° ' " 258 26 44 82 17 03	Mon. 374-27----- Mon. 375-1-----	49.84 28.68
Mon. 373-6-----	° ' " 45 43 46.06 70 23 36.61	° ' " 289 55 46 100 49 26	Mon. 373-5----- Mon. 373-7-----	35.71 177.26	Mon. 375-1-----	° ' " 45 43 10.92 70 24 06.96	° ' " 262 17 02 62 25 03	Mon. 375----- Mon. 375-2-----	28.68 27.86
Mon. 373-7-----	° ' " 45 43 47.14 70 23 44.66	° ' " 280 49 20 59 39 08	Mon. 373-6----- Mon. 374-----	177.26 115.25	Mon. 375-2-----	° ' " 45 43 10.50 70 24 08.10	° ' " 242 25 02 76 21 37	Mon. 375-1----- Mon. 375-3-----	27.86 71.79
Mon. 374-----	° ' " 45 43 45.25 70 23 49.26	° ' " 239 39 05 53 58 08	Mon. 373-7----- Mon. 374-1-----	115.25 8.78	Mon. 375-3-----	° ' " 45 43 09.95 70 24 11.33	° ' " 256 21 35 60 52 42	Mon. 375-2----- Mon. 375-4-----	71.79 25.22
Mon. 374-1-----	° ' " 45 43 45.08 70 23 49.59	° ' " 233 58 08 33 04 04	Mon. 374----- Mon. 374-2-----	8.78 75.83	Mon. 375-4-----	° ' " 45 43 09.55 70 24 12.35	° ' " 240 52 41 19 28 47	Mon. 375-3----- Mon. 375-5-----	25.22 15.56
Mon. 374-2-----	° ' " 45 43 43.02 70 23 51.50	° ' " 213 04 03 354 07 52	Mon. 374-1----- Mon. 374-3-----	75.83 92.68	Mon. 375-5-----	° ' " 45 43 09.08 70 24 12.59	° ' " 199 28 47 21 47 47	Mon. 375-4----- Mon. 375-6-----	15.56 46.86
Mon. 374-3-----	° ' " 45 43 40.04 70 23 51.06	° ' " 174 07 52 349 23 33	Mon. 374-2----- Mon. 374-4-----	92.68 83.95	Mon. 375-6-----	° ' " 45 43 07.67 70 24 13.39	° ' " 201 47 46 51 13 40	Mon. 375-5----- Mon. 375-7-----	46.86 58.72
Mon. 374-4-----	° ' " 45 43 37.37 70 23 50.35	° ' " 169 23 34 31 15 09	Mon. 374-3----- Mon. 374-5-----	83.95 34.57	Mon. 375-7-----	° ' " 45 43 06.48 70 24 15.51	° ' " 231 13 38 74 44 44	Mon. 375-6----- Mon. 375-8-----	58.72 201.92
Mon. 374-5-----	° ' " 45 43 36.41 70 23 51.18	° ' " 211 15 08 67 43 39	Mon. 374-4----- Mon. 374-6-----	34.57 46.47	Mon. 375-8-----	° ' " 45 43 04.76 70 24 24.52	° ' " 254 44 37 51 47 35	Mon. 375-7----- Mon. 375-9-----	201.92 79.82
Mon. 374-6-----	° ' " 45 43 35.84 70 23 53.16	° ' " 247 43 38 26 53 07	Mon. 374-5----- Mon. 374-7-----	46.47 19.28	Mon. 375-9-----	° ' " 45 43 03.16 70 24 27.42	° ' " 231 47 33 44 30 42	Mon. 375-8----- Mon. 375-10-----	79.82 38.49
Mon. 374-7-----	° ' " 45 43 35.28 70 23 53.57	° ' " 206 53 57 349 15 37	Mon. 374-6----- Mon. 374-8-----	19.28 47.28	Mon. 375-10-----	° ' " 45 43 02.27 70 24 28.66	° ' " 224 30 41 24 11 58	Mon. 375-9----- Mon. 376-----	38.49 46.85
Mon. 374-8-----	° ' " 45 43 33.78 70 23 53.16	° ' " 169 15 34 339 24 57	Mon. 374-7----- Mon. 374-9-----	47.28 27.63	Mon. 376-----	° ' " 45 43 00.88 70 24 29.55	° ' " 204 11 57 19 43 32	Mon. 375-10----- Mon. 376-1-----	46.85 13.39
Mon. 374-9-----	° ' " 45 43 32.94 70 23 52.71	° ' " 159 24 57 333 57 18	Mon. 374-8----- Mon. 374-10-----	27.63 31.08	Mon. 376-1-----	° ' " 45 43 00.48 70 24 29.76	° ' " 199 43 32 88 58 50	Mon. 376----- Mon. 376-2-----	13.39 18.69
Mon. 374-10-----	° ' " 45 43 32.04 70 23 52.08	° ' " 153 57 18 277 16 37	Mon. 374-9----- Mon. 374-11-----	31.08 23.04	Mon. 376-2-----	° ' " 45 43 00.46 70 24 30.63	° ' " 268 58 49 86 05 49	Mon. 376-1----- Mon. 376-3-----	18.69 74.74
Mon. 374-11-----	° ' " 45 43 31.94 70 23 51.02	° ' " 97 16 38 336 52 57	Mon. 374-10----- Mon. 374-12-----	23.04 34.89	Mon. 376-3-----	° ' " 45 43 00.30 70 24 34.08	° ' " 266 05 47 90 26 50	Mon. 376-2----- Mon. 376-4-----	74.74 42.00
Mon. 374-12-----	° ' " 45 43 30.90 70 23 50.39	° ' " 156 52 57 43 18 14	Mon. 374-11----- Mon. 374-13-----	34.89 28.98	Mon. 376-4-----	° ' " 45 43 00.31 70 24 36.02	° ' " 270 26 49 71 52 09	Mon. 376-3----- Mon. 376-5-----	42.00 95.86
Mon. 374-13-----	° ' " 45 43 30.22 70 23 51.31	° ' " 223 18 13 4 01 28	Mon. 374-12----- Mon. 374-14-----	28.98 58.37	Mon. 376-5-----	° ' " 45 42 59.34 70 24 40.23	° ' " 251 52 06 90 35 16	Mon. 376-4----- Mon. 376-6-----	95.86 31.99
Mon. 374-14-----	° ' " 45 43 28.33 70 23 51.50	° ' " 184 01 28 65 56 37	Mon. 374-13----- Mon. 374-15-----	58.37 56.58	Mon. 376-6-----	° ' " 45 42 59.36 70 24 41.71	° ' " 270 35 15 105 09 35	Mon. 376-5----- Mon. 376-7-----	31.99 98.99
Mon. 374-15-----	° ' " 45 43 27.59 70 23 53.89	° ' " 245 56 35 353 01 41	Mon. 374-14----- Mon. 374-16-----	56.58 105.38	Mon. 376-7-----	° ' " 45 43 00.19 70 24 46.13	° ' " 285 09 32 84 54 12	Mon. 376-6----- Mon. 376-8-----	98.99 58.61



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 376-8-----	45 43 00.02 70 24 48.82	264 54 10 34 22 31	Mon. 376-7----- Mon. 377-----	58.61 9.77	Mon. 378-24-----	45 42 37.26 70 25 48.19	231 15 59 27 03 45	Mon. 378-23----- Mon. 378-25-----	25.71 25.72
Mon. 377-----	45 42 59.76 70 24 49.08	214 22 31 13 58 03	Mon. 376-8----- Mon. 377-1-----	9.77 37.34	Mon. 378-25-----	45 42 36.52 70 25 48.73	207 03 45 338 55 31	Mon. 378-24----- Mon. 379-----	25.72 103.18
Mon. 377-1-----	45 42 58.59 70 24 49.58	193 58 03 31 53 09	Mon. 377----- Mon. 377-2-----	37.34 13.75	Mon. 379-----	45 42 33.40 70 25 47.02	158 55 32 335 57 37	Mon. 378-25----- Mon. 379-1-----	103.18 57.49
Mon. 377-2-----	45 42 58.21 70 24 49.83	211 53 09 342 03 36	Mon. 377-1----- Mon. 377-3-----	13.75 62.21	Mon. 379 1-----	45 42 31.70 70 25 45.94	155 57 38 1 18 02	Mon. 379----- Mon. 379-2-----	57.49 77.92
Mon. 377-3-----	45 42 56.30 70 24 48.95	162 03 37 37 20 51	Mon. 377-2----- Mon. 377-4-----	62.21 15.35	Mon. 379-2-----	45 42 29.18 70 25 46.02	181 18 02 287 17 28	Mon. 379-1----- Mon. 379-3-----	77.92 32.45
Mon. 377-4-----	45 42 55.90 70 24 49.38	217 20 51 78 34 15	Mon. 377-3----- Mon. 377-5-----	15.35 41.96	Mon. 379-3-----	45 42 28.87 70 25 44.58	107 17 29 244 19 57	Mon. 379-2----- Mon. 379-4-----	32.45 82.72
Mon. 377-5-----	45 42 55.63 70 24 51.28	258 34 14 40 14 49	Mon. 377-4----- Mon. 378-----	41.96 20.64	Mon. 379-4-----	45 42 30.03 70 25 41.14	64 19 59 256 14 29	Mon. 379-3----- Mon. 379-5-----	82.72 58.18
Mon. 378-----	45 42 55.12 70 24 51.90	220 14 49 40 48 39	Mon. 377-5----- Mon. 378-1-----	20.64 59.55	Mon. 379-5-----	45 42 30.48 70 25 38.52	76 14 31 304 58 32	Mon. 379-4----- Mon. 379-6-----	58.18 118.62
Mon. 378-1-----	45 42 53.66 70 24 53.70	220 48 38 62 17 25	Mon. 378----- Mon. 378-2-----	59.55 74.28	Mon. 379-6-----	45 42 28.27 70 25 34.03	124 58 35 340 16 42	Mon. 379-5----- Mon. 379-7-----	118.62 26.91
Mon. 378-2-----	45 42 52.54 70 24 56.74	242 17 23 66 05 10	Mon. 378-1----- Mon. 378-3-----	74.28 47.74	Mon. 379-7-----	45 42 27.45 70 25 33.61	160 16 42 30 15 51	Mon. 379-6----- Mon. 379-8-----	26.91 36.64
Mon. 378-3-----	45 42 51.91 70 24 58.75	246 05 09 56 30 56	Mon. 378-2----- Mon. 378-4-----	47.74 61.37	Mon. 379-8-----	45 42 26.43 70 25 34.47	210 15 50 63 06 59	Mon. 379-7----- Mon. 380-----	36.64 4.12
Mon. 378-4-----	45 42 50.82 70 25 01.12	236 30 54 63 31 11	Mon. 378-3----- Mon. 378-5-----	61.37 73.23	Mon. 380-----	45 42 26.37 70 25 34.64	243 06 59 61 40 22	Mon. 379-8----- Mon. 380-1-----	4.12 18.53
Mon. 378-5-----	45 42 49.76 70 25 04.15	243 31 09 42 11 26	Mon. 378-4----- Mon. 378-6-----	73.23 49.82	Mon. 380-1-----	45 42 26.08 70 25 35.39	241 40 21 106 58 05	Mon. 380----- Mon. 380-2-----	18.53 103.84
Mon. 378-6-----	45 42 48.56 70 25 05.70	222 11 25 66 11 12	Mon. 378-5----- Mon. 378-7-----	49.82 104.22	Mon. 380-2-----	45 42 27.07 70 25 39.98	286 58 02 100 44 50	Mon. 380-1----- Mon. 380-3-----	103.84 27.82
Mon. 378-7-----	45 42 47.20 70 25 10.11	246 11 09 73 53 56	Mon. 378-6----- Mon. 378-8-----	104.22 62.49	Mon. 380-3-----	45 42 27.23 70 25 41.24	280 44 49 103 24 38	Mon. 380-2----- Mon. 380-4-----	27.82 57.82
Mon. 378-8-----	45 42 46.64 70 25 12.88	253 53 54 61 12 41	Mon. 378-7----- Mon. 378-9-----	62.49 37.93	Mon. 380-4-----	45 42 27.67 70 25 43.84	283 24 36 62 29 28	Mon. 380-3----- Mon. 380-5-----	57.82 53.46
Mon. 378-9-----	45 42 46.05 70 25 14.42	241 12 40 70 53 27	Mon. 378-8----- Mon. 378-10-----	37.93 164.49	Mon. 380-5-----	45 42 26.87 70 25 46.04	242 29 26 95 42 21	Mon. 380-4----- Mon. 380-6-----	53.46 50.05
Mon. 378-10-----	45 42 44.30 70 25 21.61	250 53 22 87 53 09	Mon. 378-9----- Mon. 378-11-----	164.49 26.67	Mon. 380-6-----	45 42 27.03 70 25 48.34	275 42 19 44 07 16	Mon. 380-5----- Mon. 380-7-----	50.05 41.88
Mon. 378-11-----	45 42 44.27 70 25 22.84	267 53 08 46 49 25	Mon. 378-10----- Mon. 378-12-----	26.67 56.15	Mon. 380-7-----	45 42 26.06 70 25 49.69	224 07 15 88 56 14	Mon. 380-6----- Mon. 380-8-----	41.88 66.69
Mon. 378-12-----	45 42 43.03 70 25 24.73	226 49 24 75 53 41	Mon. 378-11----- Mon. 378-13-----	56.15 38.96	Mon. 380-8-----	45 42 26.02 70 25 52.77	268 56 12 75 35 44	Mon. 380-7----- Mon. 380-9-----	66.69 46.14
Mon. 378-13-----	45 42 42.72 70 25 26.48	255 53 40 83 32 57	Mon. 378-12----- Mon. 378-14-----	38.96 59.60	Mon. 380-9-----	45 42 25.64 70 25 54.84	255 35 43 45 08 17	Mon. 380-8----- Mon. 380-10-----	46.14 31.39
Mon. 378-14-----	45 42 42.50 70 25 29.22	263 32 55 102 27 00	Mon. 378-13----- Mon. 378-15-----	59.60 60.27	Mon. 380-10-----	45 42 24.93 70 25 55.86	225 08 16 58 57 22	Mon. 380-9----- Mon. 380-11-----	31.39 122.84
Mon. 378-15-----	45 42 42.92 70 25 31.94	282 26 58 79 15 57	Mon. 378-14----- Mon. 378-16-----	60.27 62.40	Mon. 380-11-----	45 42 22.87 70 26 00.73	238 57 18 58 56 30	Mon. 380-10----- Mon. 380-12-----	122.84 47.35
Mon. 378-16-----	45 42 42.55 70 25 34.77	259 15 55 51 00 42	Mon. 378-15----- Mon. 378-17-----	62.40 21.38	Mon. 380-12-----	45 42 22.08 70 26 02.60	238 56 29 65 46 43	Mon. 380-11----- Mon. 380-13-----	47.35 48.67
Mon. 378-17-----	45 42 42.11 70 25 35.54	231 00 41 56 21 16	Mon. 378-16----- Mon. 378-18-----	21.38 115.96	Mon. 380-13-----	45 42 21.44 70 26 04.66	245 46 42 60 14 58	Mon. 380-12----- Mon. 380-14-----	48.67 29.14
Mon. 378-18-----	45 42 40.03 70 25 40.00	236 21 13 72 14 12	Mon. 378-17----- Mon. 378-19-----	115.96 28.72	Mon. 380-14-----	45 42 20.97 70 26 05.82	240 14 57 84 25 15	Mon. 380-13----- Mon. 380-15-----	29.14 49.82
Mon. 378-19-----	45 42 39.74 70 25 41.27	252 14 11 31 21 58	Mon. 378-18----- Mon. 378-20-----	28.72 19.14	Mon. 380-15-----	45 42 20.81 70 26 08.12	264 25 13 55 23 33	Mon. 380-14----- Mon. 380-16-----	49.82 174.18
Mon. 378-20-----	45 42 39.22 70 25 41.73	211 21 58 65 57 45	Mon. 378-19----- Mon. 378-21-----	19.14 38.06	Mon. 380-16-----	45 42 17.61 70 26 14.74	235 23 28 69 34 56	Mon. 380-15----- Mon. 380-17-----	174.18 77.77
Mon. 378-21-----	45 42 38.71 70 25 43.34	245 57 44 32 46 31	Mon. 378-20----- Mon. 378-22-----	38.06 40.69	Mon. 380-17-----	45 42 16.73 70 26 18.11	249 34 54 56 01 26	Mon. 380-16----- Mon. 380-18-----	77.77 75.23
Mon. 378-22-----	45 42 37.60 70 25 44.36	212 46 30 95 05 16	Mon. 378-21----- Mon. 378-23-----	40.69 63.15	Mon. 380-18-----	45 42 15.37 70 26 21.00	236 01 24 54 46 59	Mon. 380-17----- Mon. 380-19-----	75.23 56.30
Mon. 378-23-----	45 42 37.78 70 25 47.26	275 05 14 51 16 00	Mon. 378-22----- Mon. 378-24-----	63.15 25.71	Mon. 380-19-----	45 42 14.31 70 26 23.12	234 46 57 116 36 35	Mon. 380-18----- Mon. 380-20-----	56.30 29.42

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 380-20	45 42 14.74 70 26 24.34	296 36 34 128 23 13	Mon. 380-19 Mon. 380-21	29.42 43.44	Mon. 382-6	45 42 25.57 70 27 28.69	272 58 54 61 53 52	Mon. 382-5 Mon. 382-7	47.32 67.63
Mon. 380-21	45 42 15.62 70 26 25.91	308 23 12 119 39 53	Mon. 380-20 Mon. 380-22	43.44 32.73	Mon. 382-7	45 42 24.54 70 27 31.45	241 53 50 50 23 45	Mon. 382-6 Mon. 382-8	67.63 40.12
Mon. 380-22	45 42 16.14 70 26 27.23	299 39 52 155 42 34	Mon. 380-21 Mon. 380-23	32.73 88.71	Mon. 382-8	45 42 23.71 70 27 32.88	230 23 44 91 12 37	Mon. 382-7 Mon. 382-9	40.12 100.87
Mon. 380-23	45 42 18.76 70 26 28.92	335 42 33 141 09 16	Mon. 380-22 Mon. 381	88.71 11.38	Mon. 382-9	45 42 23.78 70 27 37.54	271 12 34 37 14 22	Mon. 382-8 Mon. 382-10	100.87 77.99
Mon. 381	45 42 19.05 70 26 29.24	321 09 16 146 05 33	Mon. 380-23 Mon. 381-1	11.38 27.54	Mon. 382-10	45 42 21.77 70 27 39.72	217 14 20 58 37 05	Mon. 382-9 Mon. 382-11	77.99 82.91
Mon. 381-1	45 42 19.79 70 26 29.96	326 05 32 42 13 04	Mon. 381 Mon. 381-2	27.54 22.89	Mon. 382-11	45 42 20.37 70 27 42.99	238 37 03 89 03 44	Mon. 382-10 Mon. 382-12	82.91 65.07
Mon. 381-2	45 42 19.24 70 26 30.67	222 13 03 72 21 42	Mon. 381-1 Mon. 381-3	22.89 64.86	Mon. 382-12	45 42 20.34 70 27 46.00	269 03 42 113 15 20	Mon. 382-11 Mon. 382-13	65.07 81.80
Mon. 381-3	45 42 18.60 70 26 33.52	252 21 40 59 03 09	Mon. 381-2 Mon. 381-4	64.86 80.80	Mon. 382-13	45 42 21.39 70 27 49.48	293 15 18 118 09 52	Mon. 382-12 Mon. 382-14	81.80 78.76
Mon. 381-4	45 42 17.26 70 26 36.73	239 03 07 35 44 46	Mon. 381-3 Mon. 381-5	80.80 44.80	Mon. 382-14	45 42 22.59 70 27 52.69	298 09 50 90 27 20	Mon. 382-13 Mon. 382-15	78.76 31.12
Mon. 381-5	45 42 16.08 70 26 37.94	215 44 45 49 41 43	Mon. 381-4 Mon. 381-6	44.80 85.81	Mon. 382-15	45 42 22.60 70 27 54.12	270 27 19 113 53 47	Mon. 382-14 Mon. 382-16	31.12 75.36
Mon. 381-6	45 42 14.28 70 26 40.96	229 41 41 66 08 15	Mon. 381-5 Mon. 381-7	85.81 30.07	Mon. 382-16	45 42 23.59 70 27 57.31	293 53 45 128 47 10	Mon. 382-15 Mon. 382-17	75.36 14.27
Mon. 381-7	45 42 13.89 70 26 42.23	246 08 14 82 25 18	Mon. 381-6 Mon. 381-8	30.07 65.34	Mon. 382-17	45 42 23.88 70 27 57.82	308 47 10 51 03 26	Mon. 382-16 Mon. 383	14.27 6.09
Mon. 381-8	45 42 13.61 70 26 45.23	262 25 16 99 55 03	Mon. 381-7 Mon. 381-9	65.34 44.31	Mon. 383	45 42 23.75 70 27 58.04	231 03 26 53 09 09	Mon. 382-17 Mon. 383-1	6.09 99.77
Mon. 381-9	45 42 13.85 70 26 47.25	279 55 02 71 10 49	Mon. 381-8 Mon. 381-10	44.31 33.08	Mon. 383-1	45 42 21.81 70 28 01.73	233 09 06 27 57 37	Mon. 383 Mon. 383-2	99.77 95.66
Mon. 381-10	45 42 13.51 70 26 48.69	251 10 48 122 09 53	Mon. 381-9 Mon. 381-11	33.08 123.74	Mon. 383-2	45 42 19.08 70 28 03.81	207 57 36 0 40 28	Mon. 383-1 Mon. 383-3	95.66 54.52
Mon. 381-11	45 42 15.64 70 26 53.54	302 09 49 98 34 31	Mon. 381-10 Mon. 381-12	123.74 35.02	Mon. 383-3	45 42 17.31 70 28 03.84	180 40 28 48 37 50	Mon. 383-2 Mon. 383-4	54.52 80.63
Mon. 381-12	45 42 15.81 70 26 55.14	278 34 30 103 08 36	Mon. 381-11 Mon. 381-13	35.02 81.33	Mon. 383-4	45 42 15.58 70 28 06.63	228 37 48 62 49 11	Mon. 383-3 Mon. 383-5	80.63 200.13
Mon. 381-13	45 42 16.41 70 26 58.80	283 08 33 88 24 09	Mon. 381-12 Mon. 381-14	81.33 47.03	Mon. 383-5	45 42 12.62 70 28 14.86	242 49 05 33 21 59	Mon. 383-4 Mon. 383-6	200.13 46.68
Mon. 381-14	45 42 16.37 70 27 00.97	268 24 07 62 01 44	Mon. 381-13 Mon. 381-15	47.03 48.22	Mon. 383-6	45 42 11.36 70 28 16.05	213 21 58 338 01 52	Mon. 383-5 Mon. 383-7	46.68 44.77
Mon. 381-15	45 42 15.64 70 27 02.94	242 01 43 67 17 50	Mon. 381-14 Mon. 381-16	48.22 50.96	Mon. 383-7	45 42 10.02 70 28 15.28	158 01 53 319 52 17	Mon. 383-6 Mon. 383-8	44.77 145.85
Mon. 381-16	45 42 15.00 70 27 05.11	247 17 48 24 38 55	Mon. 381-15 Mon. 381-17	50.96 15.99	Mon. 383-8	45 42 06.40 70 28 10.93	139 52 20 53 10 45	Mon. 383-7 Mon. 383-9	145.85 113.29
Mon. 381-17	45 42 14.53 70 27 05.42	204 38 55 138 59 02	Mon. 381-16 Mon. 381-18	15.99 62.47	Mon. 383-9	45 42 04.20 70 28 15.12	233 10 42 51 01 37	Mon. 383-8 Mon. 383-10	113.29 104.22
Mon. 381-18	45 42 16.05 70 27 07.32	318 59 01 141 22 09	Mon. 381-17 Mon. 381-19	62.47 111.04	Mon. 383-10	45 42 02.08 70 28 18.87	231 01 34 55 44 30	Mon. 383-9 Mon. 383-11	104.22 160.48
Mon. 381-19	45 42 18.86 70 27 10.52	321 22 07 131 46 15	Mon. 381-18 Mon. 381-20	111.04 158.89	Mon. 383-11	45 41 59.16 70 28 25.00	235 44 26 52 02 23	Mon. 383-10 Mon. 383-12	160.48 190.69
Mon. 381-20	45 42 22.29 70 27 16.00	311 46 11 145 58 20	Mon. 381-19 Mon. 382	158.89 41.70	Mon. 383-12	45 41 55.36 70 28 31.95	232 02 18 19 12 46	Mon. 383-11 Mon. 383-13	190.69 31.23
Mon. 382	45 42 23.41 70 27 17.08	325 58 19 145 25 38	Mon. 381-20 Mon. 382-1	41.70 45.86	Mon. 383-13	45 41 54.40 70 28 32.42	199 12 46 354 39 14	Mon. 383-12 Mon. 383-14	31.23 65.76
Mon. 382-1	45 42 24.63 70 27 18.28	325 25 37 100 33 47	Mon. 382 Mon. 382-2	45.86 67.38	Mon. 383-14	45 41 52.28 70 28 32.14	174 39 14 41 18 12	Mon. 383-13 Mon. 383-15	65.76 124.35
Mon. 382-2	45 42 25.03 70 27 21.34	280 33 45 116 00 52	Mon. 382-1 Mon. 382-3	67.38 50.98	Mon. 383-15	45 41 49.25 70 28 35.94	221 18 09 60 34 08	Mon. 383-14 Mon. 383-16	124.35 117.21
Mon. 382-3	45 42 25.76 70 27 23.46	296 00 50 81 00 54	Mon. 382-2 Mon. 382-4	50.98 24.13	Mon. 383-16	45 41 47.39 70 28 40.65	240 34 05 83 04 05	Mon. 383-15 Mon. 383-17	117.21 30.63
Mon. 382-4	45 42 25.64 70 27 24.56	261 00 53 84 02 56	Mon. 382-3 Mon. 382-5	24.13 42.33	Mon. 383-17	45 41 47.27 70 28 42.06	263 04 04 22 12 04	Mon. 383-16 Mon. 383-18	30.63 47.08
Mon. 382-5	45 42 25.49 70 27 26.51	264 02 55 92 58 56	Mon. 382-4 Mon. 382-6	42.33 47.32	Mon. 383-18	45 41 45.86 70 28 42.88	202 12 03 48 38 03	Mon. 383-17 Mon. 383-19	47.08 115.79

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 383-19	45 41 43.38 70 28 46.90	228 38 00 26 54 25	Mon. 383-18 Mon. 383-20	115.79 50.98	Mon. 384-7	45 41 10.75 70 29 51.56	244 56 05 333 42 43	Mon. 384-6 Mon. 384-8	48.90 34.73
Mon. 383-20	45 41 41.91 70 28 47.96	206 54 24 71 04 01	Mon. 383-19 Mon. 383-21	50.98 60.10	Mon. 384-8	45 41 09.74 70 29 50.85	154 42 44 306 22 28	Mon. 384-7 Mon. 385	34.73 30.28
Mon. 383-21	45 41 41.27 70 28 50.59	251 03 59 48 40 01	Mon. 383-20 Mon. 383-22	60.10 66.77	Mon. 385	45 41 09.16 70 29 49.72	126 22 29 334 24 06	Mon. 384-8 Mon. 385-1	30.28 17.03
Mon. 383-22	45 41 39.85 70 28 52.91	228 39 59 62 53 01	Mon. 383-21 Mon. 383-23	66.77 164.58	Mon. 385-1	45 41 08.66 70 29 49.38	154 24 06 54 20 25	Mon. 385 Mon. 385-2	17.03 59.70
Mon. 383-23	45 41 37.42 70 28 59.68	242 52 56 109 28 59	Mon. 383-22 Mon. 383-24	164.58 45.50	Mon. 385-2	45 41 07.54 70 29 51.62	234 20 23 62 15 11	Mon. 385-1 Mon. 385-3	59.70 411.59
Mon. 383-24	45 41 37.91 70 29 01.66	289 28 58 73 09 01	Mon. 383-23 Mon. 383-25	45.50 23.24	Mon. 385-3	45 41 01.33 70 30 08.45	242 14 59 54 01 02	Mon. 385-2 Mon. 385-4	411.59 60.87
Mon. 383-25	45 41 37.69 70 29 02.69	253 09 00 38 07 04	Mon. 383-24 Mon. 383-26	23.24 33.30	Mon. 385-4	45 41 00.17 70 30 10.73	234 01 00 26 36 50	Mon. 385-3 Mon. 385-5	60.87 62.86
Mon. 383-26	45 41 36.84 70 29 03.64	218 07 03 102 51 07	Mon. 383-25 Mon. 383-27	33.30 76.33	Mon. 385-5	45 40 58.35 70 30 12.03	206 36 49 0 42 21	Mon. 385-4 Mon. 385-6	62.86 23.72
Mon. 383-27	45 41 37.39 70 29 07.08	282 51 05 49 42 09	Mon. 383-26 Mon. 383-28	76.33 20.95	Mon. 385-6	45 40 57.58 70 30 12.04	180 42 21 330 29 42	Mon. 385-5 Mon. 385-7	23.72 50.44
Mon. 383-28	45 41 36.95 70 29 07.82	229 42 08 9 34 12	Mon. 383-27 Mon. 383-29	20.95 85.03	Mon. 385-7	45 40 56.16 70 30 10.90	150 29 43 344 11 03	Mon. 385-6 Mon. 385-8	50.44 37.19
Mon. 383-29	45 41 34.24 70 29 08.47	189 34 12 42 09 47	Mon. 383-28 Mon. 383-30	85.03 145.58	Mon. 385-8	45 40 55.00 70 30 10.43	164 11 03 65 08 59	Mon. 385-7 Mon. 385-9	37.19 66.45
Mon. 383-30	45 41 30.74 70 29 12.99	222 09 44 54 31 50	Mon. 383-29 Mon. 383-31	145.58 57.15	Mon. 385-9	45 40 54.10 70 30 13.22	245 08 57 62 57 04	Mon. 385-8 Mon. 385-10	66.45 48.27
Mon. 383-31	45 41 29.67 70 29 15.14	234 31 48 62 21 24	Mon. 383-30 Mon. 383-32	57.15 87.19	Mon. 385-10	45 40 53.39 70 30 15.20	242 57 03 101 20 04	Mon. 385-9 Mon. 385-11	48.27 60.04
Mon. 383-32	45 41 28.36 70 29 18.71	242 21 22 31 29 28	Mon. 383-31 Mon. 383-33	87.19 43.61	Mon. 385-11	45 40 53.77 70 30 17.92	281 20 02 55 58 45	Mon. 385-10 Mon. 385-12	60.04 68.50
Mon. 383-33	45 41 27.15 70 29 19.76	211 29 27 61 37 34	Mon. 383-32 Mon. 383-34	43.61 111.36	Mon. 385-12	45 40 52.53 70 30 20.54	235 58 43 90 39 07	Mon. 385-11 Mon. 385-13	68.50 66.19
Mon. 383-34	45 41 25.44 70 29 24.29	241 37 31 0 10 08	Mon. 383-33 Mon. 383-35	111.36 23.56	Mon. 385-13	45 40 52.55 70 30 23.60	270 39 05 62 30 53	Mon. 385-12 Mon. 385-14	66.19 68.50
Mon. 383-35	45 41 24.68 70 29 24.29	180 10 08 79 02 45	Mon. 383-34 Mon. 383-36	23.56 51.78	Mon. 385-14	45 40 51.53 70 30 26.41	242 30 51 58 57 32	Mon. 385-13 Mon. 385-15	68.50 120.83
Mon. 383-36	45 41 24.36 70 29 26.64	259 02 43 35 19 21	Mon. 383-35 Mon. 383-37	51.78 34.22	Mon. 385-15	45 40 49.51 70 30 31.20	238 57 29 70 57 33	Mon. 385-14 Mon. 385-16	120.83 49.60
Mon. 383-37	45 41 23.45 70 29 27.56	215 19 20 62 48 58	Mon. 383-36 Mon. 383-38	34.22 62.51	Mon. 385-16	45 40 48.99 70 30 33.36	250 57 31 31 09 41	Mon. 385-15 Mon. 385-17	49.60 56.49
Mon. 383-38	45 41 22.53 70 29 30.12	242 48 56 111 10 04	Mon. 383-37 Mon. 383-39	62.51 31.15	Mon. 385-17	45 40 47.42 70 30 34.71	211 09 40 71 48 26	Mon. 385-16 Mon. 385-18	56.49 53.22
Mon. 383-39	45 41 22.89 70 29 31.47	291 10 03 62 47 11	Mon. 383-38 Mon. 383-40	31.15 90.93	Mon. 385-18	45 40 46.88 70 30 37.05	251 48 24 59 17 33	Mon. 385-17 Mon. 385-19	53.22 96.91
Mon. 383-40	45 41 21.54 70 29 35.20	242 47 08 62 09 17	Mon. 383-39 Mon. 383-41	90.93 69.06	Mon. 385-19	45 40 45.28 70 30 40.90	239 17 30 1 34 02	Mon. 385-18 Mon. 385-20	96.91 112.29
Mon. 383-41	45 41 20.50 70 29 38.03	242 09 15 81 24 24	Mon. 383-40 Mon. 383-42	69.06 30.38	Mon. 385-20	45 40 41.64 70 30 41.04	181 34 02 47 53 52	Mon. 385-19 Mon. 385-21	112.29 60.70
Mon. 383-42	45 41 20.35 70 29 39.41	261 24 23 61 14 03	Mon. 383-41 Mon. 384	30.38 29.16	Mon. 385-21	45 40 40.33 70 30 43.12	227 53 51 61 35 17	Mon. 385-20 Mon. 385-22	60.70 41.95
Mon. 384	45 41 19.90 70 29 40.60	241 14 02 63 19 40	Mon. 383-42 Mon. 384-1	29.16 25.48	Mon. 385-22	45 40 39.68 70 30 44.83	241 35 16 28 51 23	Mon. 385-21 Mon. 385-23	41.95 101.11
Mon. 384-1	45 41 19.53 70 29 41.65	243 19 39 8 38 36	Mon. 384 Mon. 384-2	25.48 116.24	Mon. 385-23	45 40 36.81 70 30 47.08	208 51 21 57 27 33	Mon. 385-22 Mon. 385-24	101.11 48.17
Mon. 384-2	45 41 15.80 70 29 42.45	188 38 35 53 13 29	Mon. 384-1 Mon. 384-3	116.24 32.87	Mon. 385-24	45 40 35.97 70 30 48.96	237 27 32 37 53 38	Mon. 385-23 Mon. 385-25	48.17 49.40
Mon. 384-3	45 41 15.17 70 29 43.67	233 13 28 63 02 22	Mon. 384-2 Mon. 384-4	32.87 83.41	Mon. 385-25	45 40 34.71 70 30 50.36	217 53 37 49 54 49	Mon. 385-24 Mon. 385-26	49.40 177.92
Mon. 384-4	45 41 13.94 70 29 47.11	243 02 20 57 22 24	Mon. 384-3 Mon. 384-5	83.41 45.84	Mon. 385-26	45 40 31.00 70 30 56.65	229 54 45 28 59 37	Mon. 385-25 Mon. 385-27	177.92 49.74
Mon. 384-5	45 41 13.14 70 29 48.89	237 22 23 14 10 03	Mon. 384-4 Mon. 384-6	45.84 54.72	Mon. 385-27	45 40 29.59 70 30 57.76	208 59 36 59 42 10	Mon. 385-26 Mon. 385-28	49.74 118.24
Mon. 384-6	45 41 11.42 70 29 49.51	194 10 03 64 56 06	Mon. 384-5 Mon. 384-7	54.72 48.90	Mon. 385-28	45 40 27.66 70 31 02.48	239 42 07 53 08 16	Mon. 385-27 Mon. 385-29	118.24 41.93



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 385-29	45 40 26.84 70 31 04.03	233 08 15 32 28 17	Mon. 385-28	41.93	Mon. 387-23	45 40 15.96 70 32 04.20	271 19 44 41 08 54	Mon. 387-22	56.61
Mon. 385-30	45 40 23.91 70 31 06.69	212 28 15 301 23 41	Mon. 385-29	107.23	Mon. 387-24	45 40 14.52 70 32 05.99	221 08 53 29 28 11	Mon. 387-23	58.89
Mon. 386	45 40 23.87 70 31 06.59	121 23 41 344 00 58	Mon. 385-30	2.47	Mon. 387-25	45 40 11.69 70 32 08.27	209 28 10 68 30 38	Mon. 387-24	100.35
Mon. 386-1	45 40 21.88 70 31 05.78	164 00 59 59 02 30	Mon. 386-1	63.99	Mon. 387-26	45 40 10.86 70 32 11.29	248 30 36 74 57 49	Mon. 387-25	70.15
Mon. 386-2	45 40 20.50 70 31 09.06	239 02 28 44 52 20	Mon. 386-2	82.86	Mon. 387-27	45 40 10.30 70 32 14.28	254 57 47 53 27 29	Mon. 387-26	67.01
Mon. 386-3	45 40 17.79 70 31 12.90	224 52 17 34 29 30	Mon. 386-3	117.86	Mon. 388	45 40 09.42 70 32 15.96	233 27 28 61 10 04	Mon. 387-27	45.30
Mon. 386-4	45 40 17.26 70 31 13.42	214 29 30 337 23 16	Mon. 386-4	20.02	Mon. 388-1	45 40 08.00 70 32 19.64	241 10 01 38 59 32	Mon. 388-1	90.85
Mon. 386-5	45 40 16.33 70 31 12.88	157 23 16 343 23 11	Mon. 386-5	30.95	Mon. 388-2	45 40 04.32 70 32 23.89	218 59 29 57 19 57	Mon. 388-2	146.50
Mon. 387	45 40 13.86 70 31 11.82	163 23 12 286 37 57	Mon. 387	79.75	Mon. 388-3	45 40 01.69 70 32 29.74	237 19 53 56 50 06	Mon. 388-3	150.21
Mon. 387-1	45 40 13.84 70 31 11.73	106 37 57 359 11 08	Mon. 387-1	2.01	Mon. 388-4	45 40 00.05 70 32 33.32	236 50 03 64 42 36	Mon. 388-4	92.65
Mon. 387-2	45 40 11.72 70 31 11.69	179 11 08 62 16 55	Mon. 387-2	65.44	Mon. 388-5	45 39 59.59 70 32 34.70	244 42 35 107 31 51	Mon. 388-5	33.18
Mon. 387-3	45 40 11.41 70 31 12.52	242 16 54 64 20 18	Mon. 387-3	20.32	Mon. 388-6	45 40 01.29 70 32 42.39	287 31 46 84 01 41	Mon. 388-6	174.55
Mon. 387-4	45 40 11.06 70 31 13.58	244 20 17 4 19 37	Mon. 387-4	25.45	Mon. 388-7	45 40 01.18 70 32 43.86	264 01 40 45 31 06	Mon. 388-7	31.92
Mon. 387-5	45 40 09.01 70 31 13.80	184 19 37 61 13 33	Mon. 387-5	63.35	Mon. 388-8	45 40 00.21 70 32 45.27	225 31 05 44 45 37	Mon. 388-8	42.80
Mon. 387-6	45 40 08.13 70 31 16.08	241 13 31 97 53 24	Mon. 387-6	56.28	Mon. 388-9	45 39 59.00 70 32 46.99	224 45 36 61 15 09	Mon. 388-9	52.79
Mon. 387-7	45 40 08.35 70 31 18.30	277 53 22 59 58 30	Mon. 387-7	48.57	Mon. 388-10	45 39 58.01 70 32 49.57	241 15 07 98 22 36	Mon. 388-10	63.63
Mon. 387-8	45 40 06.17 70 31 23.67	239 58 26 92 33 53	Mon. 387-8	134.12	Mon. 389	45 39 58.25 70 32 51.94	278 22 34 105 21 24	Mon. 389	51.94
Mon. 387-9	45 40 06.22 70 31 25.22	272 33 52 37 54 15	Mon. 387-9	33.60	Mon. 389-1	45 39 58.69 70 32 54.19	285 21 22 115 32 17	Mon. 389-1	50.63
Mon. 387-10	45 40 03.55 70 31 28.19	217 54 13 48 25 04	Mon. 387-10	104.66	Mon. 389-2	45 40 04.80 70 33 12.45	295 32 04 47 53 16	Mon. 389-2	437.96
Mon. 387-11	45 40 00.96 70 31 32.34	228 25 01 62 27 52	Mon. 387-11	120.20	Mon. 389-3	45 40 02.58 70 33 15.96	227 53 13 66 37 28	Mon. 389-3	102.60
Mon. 387-12	45 39 59.22 70 31 37.10	242 27 49 115 58 40	Mon. 387-12	116.09	Mon. 389-4	45 40 00.99 70 33 21.18	246 37 24 53 46 29	Mon. 389-4	123.01
Mon. 387-13	45 40 00.27 70 31 40.15	295 58 38 134 12 32	Mon. 387-13	83.66	Mon. 389-5	45 40 00.08 70 33 22.95	233 46 28 114 19 31	Mon. 389-5	47.62
Mon. 387-14	45 40 02.16 70 31 42.92	314 12 30 156 43 10	Mon. 387-14	81.56	Mon. 389-6	45 40 00.81 70 33 25.26	294 19 29 106 36 24	Mon. 389-6	54.90
Mon. 387-15	45 40 03.14 70 31 43.53	336 43 10 130 05 14	Mon. 387-15	33.17	Mon. 389-7	45 40 01.09 70 33 26.59	286 36 23 114 09 29	Mon. 389-7	30.01
Mon. 387-16	45 40 04.85 70 31 46.41	310 05 12 159 32 26	Mon. 387-16	81.56	Mon. 389-8	45 40 01.77 70 33 28.74	294 09 27 54 45 38	Mon. 389-8	50.85
Mon. 387-17	45 40 06.26 70 31 47.16	339 32 25 134 17 21	Mon. 387-17	46.42	Mon. 389-9	45 39 59.66 70 33 33.00	234 45 35 31 33 18	Mon. 389-9	112.94
Mon. 387-18	45 40 07.69 70 31 49.26	314 17 19 148 17 11	Mon. 387-18	63.56	Mon. 389-10	45 39 57.23 70 33 35.12	211 33 16 39 56 51	Mon. 389-10	87.74
Mon. 387-19	45 40 10.43 70 31 51.67	328 17 09 131 07 04	Mon. 387-19	99.25	Mon. 389-11	45 39 55.45 70 33 37.25	219 56 49 45 16 10	Mon. 389-11	71.95
Mon. 387-20	45 40 12.35 70 31 54.81	311 07 02 123 01 55	Mon. 387-20	90.31	Mon. 389-12	45 39 53.42 70 33 40.17	225 16 08 339 20 44	Mon. 389-12	88.93
Mon. 387-21	45 40 13.56 70 31 57.47	303 01 53 129 12 55	Mon. 387-21	68.52	Mon. 390	45 39 51.22 70 33 38.99	159 20 45 348 12 38	Mon. 390	72.55
Mon. 387-22	45 40 15.92 70 32 01.58	309 12 52 91 19 46	Mon. 387-22	115.04	Mon. 390-1	45 39 50.82 70 33 38.87	168 12 38 58 29 03	Mon. 390-1	12.55
			Mon. 387-23	56.61				Mon. 390-2	78.14

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 390-2-----	45 39 49.50 70 33 41.95	238 29 01 63 42 06	Mon. 390-1----- Mon. 390-3-----	78.14 228.88	Mon. 392-8-----	45 38 41.46 70 34 44.71	223 57 59 30 00 03	Mon. 392-7----- Mon. 392-9-----	155.11 96.71
Mon. 390-3-----	45 39 46.22 70 33 51.43	243 41 59 1 17 24	Mon. 390-2----- Mon. 390-4-----	228.88 87.41	Mon. 392-9-----	45 38 38.74 70 34 46.94	210 00 01 33 58 03	Mon. 392-8----- Mon. 392-10-----	96.71 56.16
Mon. 390-4-----	45 39 43.38 70 33 51.52	181 17 24 331 18 42	Mon. 390-3----- Mon. 390-5-----	87.41 111.65	Mon. 392-10-----	45 38 37.24 70 34 48.39	213 58 02 53 48 18	Mon. 392-9----- Mon. 392-11-----	56.16 156.73
Mon. 390-5-----	45 39 40.21 70 33 49.04	151 18 44 319 48 32	Mon. 390-4----- Mon. 390-6-----	111.65 102.26	Mon. 392-11-----	45 38 34.24 70 34 54.23	233 48 14 59 36 48	Mon. 392-10----- Mon. 392-12-----	156.73 53.73
Mon. 390-6-----	45 39 37.68 70 33 45.99	139 48 34 19 01 49	Mon. 390-5----- Mon. 390-7-----	102.26 75.45	Mon. 392-12-----	45 38 33.36 70 34 56.37	239 36 46 87 36 18	Mon. 392-11----- Mon. 392-13-----	53.73 85.36
Mon. 390-7-----	45 39 35.37 70 33 47.13	199 01 48 35 19 14	Mon. 390-6----- Mon. 390-8-----	75.45 34.64	Mon. 392-13-----	45 38 33.24 70 35 00.31	267 36 15 81 41 48	Mon. 392-12----- Mon. 392-14-----	85.36 57.99
Mon. 390-8-----	45 39 34.46 70 33 48.06	215 19 13 15 15 42	Mon. 390-7----- Mon. 390-9-----	34.64 144.91	Mon. 392-14-----	45 38 32.97 70 35 02.96	261 41 46 10 10 18	Mon. 392-13----- Mon. 392-15-----	57.99 66.91
Mon. 390-9-----	45 39 29.93 70 33 49.82	195 15 41 54 01 45	Mon. 390-8----- Mon. 390-10-----	144.91 53.32	Mon. 392-15-----	45 38 30.84 70 35 03.50	190 10 18 9 12 33	Mon. 392-14----- Mon. 392-16-----	66.91 87.80
Mon. 390-10-----	45 39 28.91 70 33 51.81	234 01 44 50 35 09	Mon. 390-9----- Mon. 390-11-----	53.32 141.80	Mon. 392-16-----	45 38 28.03 70 35 04.15	189 12 33 336 01 33	Mon. 392-15----- Mon. 392-17-----	87.80 57.18
Mon. 390-11-----	45 39 26.00 70 33 56.87	230 35 05 8 55 58	Mon. 390-10----- Mon. 390-12-----	141.80 67.83	Mon. 392-17-----	45 38 26.34 70 35 03.08	156 01 34 14 31 16	Mon. 392-16----- Mon. 393-----	57.18 54.03
Mon. 390-12-----	45 39 23.83 70 33 57.36	188 55 58 340 46 50	Mon. 390-11----- Mon. 390-13-----	67.83 144.71	Mon. 393-----	45 38 24.64 70 35 03.70	194 31 16 20 12 15	Mon. 392-17----- Mon. 393-1-----	54.03 78.96
Mon. 390-13-----	45 39 19.40 70 33 55.15	160 46 52 16 57 15	Mon. 390-12----- Mon. 390-14-----	144.71 56.77	Mon. 393-1-----	45 38 22.24 70 35 04.96	200 12 14 324 36 48	Mon. 393----- Mon. 393-2-----	78.96 33.99
Mon. 390-14-----	45 39 17.64 70 33 55.92	196 57 14 67 17 06	Mon. 390-13----- Mon. 390-15-----	56.77 92.79	Mon. 393-2-----	45 38 21.35 70 35 04.06	144 36 49 19 22 18	Mon. 393-1----- Mon. 393-3-----	33.99 34.59
Mon. 390-15-----	45 39 16.48 70 33 59.87	247 17 03 56 25 36	Mon. 390-14----- Mon. 390-16-----	92.79 89.51	Mon. 393-3-----	45 38 20.29 70 35 04.59	199 22 18 50 14 03	Mon. 393-2----- Mon. 393-4-----	34.59 160.22
Mon. 390-16-----	45 39 14.88 70 33 57.36	236 25 34 27 32 18	Mon. 390-15----- Mon. 391-----	89.51 74.23	Mon. 393-4-----	45 38 16.97 70 35 10.27	230 13 59 58 18 48	Mon. 393-3----- Mon. 393-5-----	160.22 41.27
Mon. 391-----	45 39 12.75 70 34 04.90	207 32 17 26 13 44	Mon. 390-16----- Mon. 391-1-----	74.23 154.03	Mon. 393-5-----	45 38 16.27 70 35 11.89	238 18 47 11 45 03	Mon. 393-4----- Mon. 393-6-----	41.27 254.69
Mon. 391-1-----	45 39 08.28 70 34 08.04	206 13 42 44 26 21	Mon. 391----- Mon. 391-2-----	154.03 189.43	Mon. 393-6-----	45 38 08.19 70 35 14.29	191 45 01 45 13 33	Mon. 393-5----- Mon. 393-7-----	254.69 71.41
Mon. 391-2-----	45 39 03.90 70 34 14.17	224 26 17 54 54 52	Mon. 391-1----- Mon. 391-3-----	189.43 63.42	Mon. 393-7-----	45 38 06.56 70 35 16.63	225 13 31 55 40 48	Mon. 393-6----- Mon. 393-8-----	71.41 240.13
Mon. 391-3-----	45 39 02.72 70 34 16.57	234 54 50 40 33 45	Mon. 391-2----- Mon. 391-4-----	63.42 71.14	Mon. 393-8-----	45 38 02.18 70 35 25.78	235 40 41 29 09 18	Mon. 393-7----- Mon. 393-9-----	240.13 110.65
Mon. 391-4-----	45 39 00.96 70 34 18.70	220 33 43 62 48 54	Mon. 391-3----- Mon. 391-5-----	71.14 93.43	Mon. 393-9-----	45 37 59.05 70 35 28.27	209 09 16 5 17 48	Mon. 393-8----- Mon. 393-10-----	110.65 53.40
Mon. 391-5-----	45 38 59.58 70 34 22.54	242 48 51 47 34 56	Mon. 391-4----- Mon. 391-6-----	93.43 42.52	Mon. 393-10-----	45 37 57.32 70 35 28.50	185 17 48 353 33 33	Mon. 393-9----- Mon. 393-11-----	53.40 89.82
Mon. 391-6-----	45 38 58.65 70 34 23.99	227 34 55 5 17 35	Mon. 391-5----- Mon. 391-7-----	42.52 57.36	Mon. 393-11-----	45 37 54.43 70 35 28.03	173 33 33 10 51 48	Mon. 393-10----- Mon. 393-12-----	89.82 139.18
Mon. 391-7-----	45 38 56.80 70 34 24.23	185 17 34 9 28 21	Mon. 391-6----- Mon. 392-----	57.36 15.98	Mon. 393-12-----	45 37 50.01 70 35 29.25	190 51 47 47 43 03	Mon. 393-11----- Mon. 393-13-----	139.18 155.36
Mon. 392-----	45 38 56.29 70 34 24.36	189 28 20 352 48 16	Mon. 391-7----- Mon. 392-1-----	15.98 11.34	Mon. 393-13-----	45 37 46.62 70 35 34.55	227 42 59 92 55 48	Mon. 393-12----- Mon. 393-14-----	155.36 244.98
Mon. 392-1-----	45 38 55.93 70 34 24.29	172 48 16 71 24 33	Mon. 392----- Mon. 392-2-----	11.34 29.20	Mon. 393-14-----	45 37 47.03 70 35 45.84	272 55 40 99 06 18	Mon. 393-13----- Mon. 393-15-----	244.98 98.52
Mon. 392-2-----	45 38 55.63 70 34 25.57	251 24 32 68 31 33	Mon. 392-1----- Mon. 392-3-----	29.20 78.06	Mon. 393-15-----	45 37 47.53 70 35 50.33	279 06 15 57 44 33	Mon. 393-14----- Mon. 393-16-----	98.52 34.79
Mon. 392-3-----	45 38 54.70 70 34 28.92	248 31 31 86 23 03	Mon. 392-2----- Mon. 392-4-----	78.06 113.74	Mon. 393-16-----	45 37 46.93 70 35 51.69	237 44 32 33 11 53	Mon. 393-15----- Mon. 394-----	34.79 102.78
Mon. 392-4-----	45 38 54.47 70 34 34.16	266 22 59 20 36 48	Mon. 392-3----- Mon. 392-5-----	113.74 158.35	Mon. 394-----	45 37 44.15 70 35 54.29	213 11 51 44 00 47	Mon. 393-16----- Mon. 394-1-----	102.78 83.85
Mon. 392-5-----	45 38 49.67 70 34 36.74	200 36 46 50 58 48	Mon. 392-4----- Mon. 392-6-----	158.35 83.94	Mon. 394-1-----	45 37 42.19 70 35 56.98	224 00 45 51 50 32	Mon. 394----- Mon. 394-2-----	83.85 189.31
Mon. 392-6-----	45 38 47.96 70 34 39.75	230 58 46 359 46 18	Mon. 392-5----- Mon. 392-7-----	83.94 89.01	Mon. 394-2-----	45 37 38.41 70 36 03.85	231 50 27 74 32 02	Mon. 394-1----- Mon. 394-3-----	189.31 219.85
Mon. 392-7-----	45 38 45.07 70 34 39.73	179 46 18 43 58 03	Mon. 392-6----- Mon. 392-8-----	89.01 155.11	Mon. 394-3-----	45 37 36.51 70 36 13.63	254 31 55 85 17 02	Mon. 394-2----- Mon. 394-4-----	219.85 145.22

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 394-4	45 37 36.12 70 36 20.31	265 16 57 55 37 32	Mon. 394-3 Mon. 394-5	145.22 187.28	Mon. 396-5	45 36 33.40 70 37 56.59	234 35 44 94 05 15	Mon. 396-4 Mon. 396-6	56.21 79.46
Mon. 394-5	45 37 32.70 70 36 27.45	235 37 28 7 57 47	Mon. 394-4 Mon. 394-6	187.28 77.26	Mon. 396-6	45 36 33.58 70 38 00.24	274 05 12 119 57 45	Mon. 396-5 Mon. 396-7	79.46 191.88
Mon. 394-6	45 37 30.22 70 36 27.94	187 57 47 359 48 31	Mon. 394-5 Mon. 394-7	77.26 59.66	Mon. 396-7	45 36 36.69 70 38 07.92	299 57 40 79 30 00	Mon. 396-6 Mon. 396-8	191.88 95.44
Mon. 394-7	45 37 28.28 70 36 27.93	179 48 31 0 13 02	Mon. 394-6 Mon. 394-8	59.66 72.00	Mon. 396-8	45 36 36.12 70 38 12.25	259 29 57 54 16 45	Mon. 396-7 Mon. 396-9	95.44 150.43
Mon. 394-8	45 37 25.95 70 36 27.95	180 13 02 25 23 32	Mon. 394-7 Mon. 394-9	72.00 246.95	Mon. 396-9	45 36 33.28 70 38 17.88	234 16 41 62 25 45	Mon. 396-8 Mon. 396-10	150.43 252.13
Mon. 394-9	45 37 18.73 70 36 32.83	205 23 29 49 52 02	Mon. 394-8 Mon. 394-10	246.95 49.35	Mon. 396-10	45 36 29.50 70 38 28.20	242 25 38 56 17 30	Mon. 396-9 Mon. 396-11	252.13 68.54
Mon. 394-10	45 37 17.70 70 36 34.58	229 62 01 75 17 17	Mon. 394-9 Mon. 394-11	49.35 144.81	Mon. 396-11	45 36 28.27 70 38 30.83	236 17 28 80 26 00	Mon. 396-10 Mon. 396-12	68.54 45.90
Mon. 394-11	45 37 16.51 70 36 41.04	255 17 12 47 04 32	Mon. 394-10 Mon. 394-12	144.81 68.36	Mon. 396-12	45 36 28.02 70 38 32.92	260 25 59 60 49 15	Mon. 396-11 Mon. 396-13	45.90 87.95
Mon. 394-12	45 37 15.00 70 36 43.35	227 04 30 23 16 32	Mon. 394-11 Mon. 394-13	68.36 107.60	Mon. 396-13	45 36 26.63 70 38 36.46	240 49 12 85 13 30	Mon. 396-12 Mon. 396-14	87.95 78.85
Mon. 394-13	45 37 11.80 70 36 45.31	203 16 31 51 20 58	Mon. 394-12 Mon. 395	107.60 68.83	Mon. 396-14	45 36 26.42 70 38 40.09	265 13 27 61 10 45	Mon. 396-13 Mon. 396-15	78.85 39.27
Mon. 395	45 37 10.40 70 36 47.79	231 20 56 57 31 51	Mon. 394-13 Mon. 395-1	68.83 76.49	Mon. 396-15	45 36 25.80 70 38 41.67	241 10 44 61 59 45	Mon. 396-14 Mon. 396-16	39.27 21.84
Mon. 395-1	45 37 09.07 70 36 50.77	237 31 49 62 00 30	Mon. 395 Mon. 395-2	76.49 123.34	Mon. 396-16	45 36 25.47 70 38 42.56	241 59 44 44 33 33	Mon. 396-15 Mon. 397	21.84 35.42
Mon. 395-2	45 37 07.20 70 36 55.80	242 00 26 56 34 30	Mon. 395-1 Mon. 395-3	123.34 56.01	Mon. 397	45 36 24.66 70 38 43.71	224 33 32 39 43 01	Mon. 396-16 Mon. 397-1	35.42 45.78
Mon. 395-3	45 37 06.20 70 36 57.96	236 34 28 358 22 00	Mon. 395-2 Mon. 395-4	56.01 60.05	Mon. 397-1	45 36 23.52 70 38 45.06	219 43 00 12 25 22	Mon. 397 Mon. 397-2	45.78 123.74
Mon. 395-4	45 37 04.26 70 36 57.88	178 22 00 45 24 15	Mon. 395-3 Mon. 395-5	60.05 180.56	Mon. 397-2	45 36 19.60 70 38 46.29	192 25 21 14 47 22	Mon. 397-1 Mon. 397-3	123.74 172.31
Mon. 395-5	45 37 00.15 70 37 03.81	225 24 12 18 02 30	Mon. 395-4 Mon. 395-6	180.56 60.05	Mon. 397-3	45 36 14.20 70 38 48.32	194 47 21 41 45 42	Mon. 397-2 Mon. 397-4	172.31 56.43
Mon. 395-6	45 36 58.30 70 37 04.67	198 02 29 41 17 45	Mon. 395-5 Mon. 395-7	60.05 90.99	Mon. 397-4	45 36 12.84 70 38 50.05	221 45 41 29 54 12	Mon. 397-3 Mon. 397-5	56.43 246.88
Mon. 395-7	45 36 56.09 70 37 07.44	221 17 43 11 15 15	Mon. 395-6 Mon. 395-8	90.99 79.87	Mon. 397-5	45 36 05.91 70 38 55.73	209 54 08 29 51 12	Mon. 397-4 Mon. 397-6	246.88 60.46
Mon. 395-8	45 36 53.55 70 37 08.16	191 15 14 40 18 30	Mon. 395-7 Mon. 395-9	79.87 60.05	Mon. 397-6	45 36 04.21 70 38 57.12	209 51 11 40 47 42	Mon. 397-5 Mon. 397-7	60.46 145.71
Mon. 395-9	45 36 52.07 70 37 09.95	220 18 29 357 24 15	Mon. 395-8 Mon. 395-10	60.66 208.87	Mon. 397-7	45 36 00.64 70 39 01.51	220 47 39 45 02 12	Mon. 397-6 Mon. 397-8	145.71 111.85
Mon. 395-10	45 36 45.31 70 37 09.52	177 24 15 32 24 00	Mon. 395-9 Mon. 395-11	208.87 60.66	Mon. 397-8	45 35 58.08 70 39 05.17	225 02 09 321 32 42	Mon. 397-7 Mon. 397-9	111.85 133.21
Mon. 395-11	45 36 43.65 70 37 11.02	212 23 59 78 06 00	Mon. 395-10 Mon. 395-12	60.66 142.15	Mon. 397-9	45 35 54.70 70 39 01.34	141 32 39 330 00 17	Mon. 397-8 Mon. 397-10	133.21 30.63
Mon. 395-12	45 36 42.70 70 37 17.44	258 05 55 70 38 45	Mon. 395-11 Mon. 395-13	142.15 189.66	Mon. 397-10	45 35 53.84 70 39 00.64	150 00 17 12 11 12	Mon. 397-9 Mon. 397-11	30.63 70.94
Mon. 395-13	45 36 40.66 70 37 25.70	250 38 39 112 15 45	Mon. 395-12 Mon. 395-14	189.66 104.74	Mon. 397-11	45 35 51.60 70 39 01.33	192 11 12 32 30 12	Mon. 397-10 Mon. 397-12	70.94 222.09
Mon. 395-14	45 36 41.95 70 37 30.17	292 15 42 61 03 00	Mon. 395-13 Mon. 395-15	104.74 44.69	Mon. 397-12	45 35 45.53 70 39 06.83	212 30 08 46 15 57	Mon. 397-11 Mon. 397-13	222.09 77.99
Mon. 395-15	45 36 41.25 70 37 31.98	241 02 59 48 45 54	Mon. 395-14 Mon. 396	44.69 199.61	Mon. 397-13	45 35 43.78 70 39 09.43	226 15 55 27 48 58	Mon. 397-12 Mon. 398	77.99 93.31
Mon. 396	45 36 36.98 70 37 38.90	228 45 49 12 58 43	Mon. 395-15 Mon. 396-1	199.61 7.12	Mon. 398	45 35 41.11 70 39 11.44	207 48 57 27 21 19	Mon. 397-13 Mon. 398-1	93.31 231.84
Mon. 396-1	45 36 36.76 70 37 38.98	192 58 43 97 09 15	Mon. 396 Mon. 396-2	7.12 89.37	Mon. 398-1	45 35 34.44 70 39 16.36	207 21 16 39 43 18	Mon. 398 Mon. 398-2	231.84 269.60
Mon. 396-2	45 36 37.12 70 37 43.07	277 09 12 86 06 15	Mon. 396-1 Mon. 396-3	89.37 133.45	Mon. 398-2	45 35 27.72 70 39 21.31	219 43 12 46 54 48	Mon. 398-1 Mon. 398-3	269.60 75.73
Mon. 396-3	45 36 36.83 70 37 49.21	266 06 11 57 14 45	Mon. 396-2 Mon. 396-4	133.45 135.47	Mon. 398-3	45 35 26.04 70 39 26.86	226 54 46 62 44 33	Mon. 398-2 Mon. 398-4	75.73 197.31
Mon. 396-4	45 36 34.45 70 37 54.47	237 14 41 54 35 45	Mon. 396-3 Mon. 396-5	135.47 56.21	Mon. 398-4	45 35 23.12 70 39 34.95	242 44 27 358 55 03	Mon. 398-3 Mon. 398-5	197.31 263.54



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 398-5-----	45 35 14.58 70 39 34.72	178 55 03 34 48 18	Mon. 398-4----- Mon. 398-6-----	263.54 91.28	Mon. 400-9-----	45 34 01.82 70 41 09.05	149 09 43 348 12 26	Mon. 400-8----- Mon. 400-10-----	133.22 57.09
Mon. 398-6-----	45 35 12.16 70 39 37.12	214 48 16 48 14 18	Mon. 398-5----- Mon. 398-7-----	91.28 50.29	Mon. 400-10-----	45 34 00.61 70 41 08.51	168 12 26 48 28 41	Mon. 400-9----- Mon. 400-11-----	57.09 70.65
Mon. 398-7-----	45 35 11.07 70 39 38.85	228 14 17 45 34 03	Mon. 398-6----- Mon. 398-8-----	50.29 164.59	Mon. 400-11-----	45 33 58.49 70 41 10.95	228 28 39 357 28 26	Mon. 400-10----- Mon. 400-12-----	70.65 110.74
Mon. 398-8-----	45 35 04.34 70 39 44.28	225 33 59 67 48 18	Mon. 398-7----- Mon. 398-9-----	164.59 122.38	Mon. 400-12-----	45 33 54.90 70 41 10.72	177 28 26 50 39 56	Mon. 400-11----- Mon. 400-13-----	110.74 144.56
Mon. 398-9-----	45 35 05.84 70 39 49.50	247 48 14 60 15 03	Mon. 398-8----- Mon. 398-10-----	122.38 57.36	Mon. 400-13-----	45 33 51.94 70 41 15.88	230 39 52 79 33 26	Mon. 400-12----- Mon. 400-14-----	144.56 94.75
Mon. 398-10-----	45 35 04.92 70 39 51.80	240 15 01 349 29 03	Mon. 398-9----- Mon. 398-11-----	57.36 117.54	Mon. 400-14-----	45 33 51.38 70 41 20.18	259 33 23 20 08 26	Mon. 400-13----- Mon. 400-15-----	94.75 76.13
Mon. 398-11-----	45 35 01.18 70 39 50.81	169 29 04 26 51 33	Mon. 398-10----- Mon. 398-12-----	117.54 96.94	Mon. 400-15-----	45 33 49.07 70 41 21.38	200 08 25 14 26 41	Mon. 400-14----- Mon. 400-16-----	76.13 55.47
Mon. 398-12-----	45 34 58.38 70 39 52.83	206 51 32 72 54 33	Mon. 398-11----- Mon. 398-13-----	96.94 114.51	Mon. 400-16-----	45 33 47.33 70 41 22.02	194 26 40 14 26 41	Mon. 400-15----- Mon. 400-17-----	55.47 99.61
Mon. 398-13-----	45 34 57.29 70 39 57.88	252 54 29 49 34 39	Mon. 398-12----- Mon. 399-----	114.51 150.09	Mon. 400-17-----	45 33 44.20 70 41 23.17	194 26 40 334 09 11	Mon. 400-16----- Mon. 400-18-----	99.61 196.99
Mon. 399-----	45 34 54.13 70 40 03.15	229 34 35 50 42 24	Mon. 398-13----- Mon. 399-1-----	150.09 459.28	Mon. 400-18-----	45 33 38.46 70 41 19.21	154 09 14 329 56 11	Mon. 400-17----- Mon. 400-19-----	196.99 71.67
Mon. 399-1-----	45 34 44.71 70 40 19.54	230 42 12 42 45 10	Mon. 399----- Mon. 399-2-----	459.28 71.05	Mon. 400-19-----	45 33 36.45 70 41 17.55	149 56 12 294 39 11	Mon. 400-18----- Mon. 400-20-----	71.67 79.77
Mon. 399-2-----	45 34 43.02 70 40 21.76	222 45 08 24 04 24	Mon. 399-1----- Mon. 399-3-----	71.05 71.25	Mon. 400-20-----	45 33 35.37 70 41 14.21	114 39 13 305 56 56	Mon. 400-19----- Mon. 400-21-----	79.77 45.75
Mon. 399-3-----	45 34 40.92 70 40 23.10	204 04 23 349 00 25	Mon. 399-2----- Mon. 399-4-----	71.25 192.69	Mon. 400-21-----	45 33 34.50 70 41 12.50	125 56 57 332 02 56	Mon. 400-20----- Mon. 401-----	45.75 127.36
Mon. 399-4-----	45 34 34.79 70 40 21.41	169 00 26 39 50 54	Mon. 399-3----- Mon. 399-5-----	192.69 202.00	Mon. 401-----	45 33 30.86 70 41 09.75	152 02 58 331 02 02	Mon. 400-21----- Mon. 401-1-----	127.36 191.76
Mon. 399-5-----	45 34 29.76 70 40 27.38	219 50 50 57 16 55	Mon. 399-4----- Mon. 399-6-----	202.00 118.61	Mon. 401-1-----	45 33 25.42 70 41 05.46	151 02 05 315 36 50	Mon. 401----- Mon. 401-2-----	191.76 174.24
Mon. 399-6-----	45 34 27.69 70 40 31.98	237 16 52 21 38 54	Mon. 399-5----- Mon. 399-7-----	118.61 144.72	Mon. 401-2-----	45 33 21.39 70 40 59.85	135 36 54 308 31 50	Mon. 401-1----- Mon. 401-3-----	174.24 362.16
Mon. 399-7-----	45 34 23.33 70 40 34.44	201 38 52 38 25 40	Mon. 399-6----- Mon. 399-8-----	144.72 168.81	Mon. 401-3-----	45 33 14.08 70 40 46.78	128 31 59 319 00 48	Mon. 401-2----- Mon. 401-4-----	362.16 235.80
Mon. 399-8-----	45 34 19.05 70 40 39.28	218 25 37 42 42 10	Mon. 399-7----- Mon. 399-9-----	168.81 77.12	Mon. 401-4-----	45 33 08.32 70 40 39.66	139 00 53 28 24 50	Mon. 401-3----- Mon. 401-5-----	235.80 68.00
Mon. 399-9-----	45 34 17.21 70 40 41.70	222 42 07 19 06 54	Mon. 399-8----- Mon. 399-10-----	77.12 100.19	Mon. 401-5-----	45 33 06.38 70 40 41.15	208 24 49 68 19 38	Mon. 401-4----- Mon. 401-6-----	68.00 103.01
Mon. 399-10-----	45 34 14.14 70 40 43.21	199 06 53 70 04 24	Mon. 399-9----- Mon. 399-11-----	100.19 96.75	Mon. 401-6-----	45 33 05.15 70 40 45.56	248 19 35 44 27 20	Mon. 401-5----- Mon. 401-7-----	103.01 110.66
Mon. 399-11-----	45 34 13.08 70 40 47.40	250 04 21 82 40 40	Mon. 399-10----- Mon. 399-12-----	96.75 108.70	Mon. 401-7-----	45 33 02.59 70 40 49.13	224 27 17 98 02 50	Mon. 401-6----- Mon. 401-8-----	110.66 65.40
Mon. 399-12-----	45 34 12.63 70 40 52.38	262 40 37 64 49 18	Mon. 399-11----- Mon. 400-----	108.70 227.52	Mon. 401-8-----	45 33 02.89 70 40 52.12	278 02 48 114 54 50	Mon. 401-7----- Mon. 401 9-----	65.40 68.81
Mon. 400-----	45 34 09.49 70 41 01.87	244 49 11 66 11 32	Mon. 399-12----- Mon. 400-1-----	227.52 76.54	Mon. 401-9-----	45 33 03.82 70 40 55.00	294 54 48 93 44 38	Mon. 401-8----- Mon. 401-10-----	68.81 208.66
Mon. 400-1-----	45 34 08.49 70 41 05.10	246 11 30 111 40 56	Mon. 400----- Mon. 400-2-----	76.54 176.54	Mon. 401-10-----	45 33 04.27 70 41 04.59	273 44 31 70 49 38	Mon. 401-9----- Mon. 401-11-----	208.66 68.21
Mon. 400-2-----	45 34 10.60 70 41 12.67	291 40 51 89 15 11	Mon. 400-1----- Mon. 400-3-----	176.54 52.03	Mon. 401-11-----	45 33 03.54 70 41 07.56	250 49 36 43 30 38	Mon. 401-10----- Mon. 401-12-----	68.21 241.44
Mon. 400-3-----	45 34 10.58 70 41 15.06	269 15 09 80 41 56	Mon. 400-2----- Mon. 400-4-----	52.03 59.52	Mon. 401-12-----	45 32 57.87 70 41 15.23	223 30 33 34 07 20	Mon. 401-11----- Mon. 401-13-----	241.44 312.46
Mon. 400-4-----	45 34 10.27 70 41 17.77	260 41 54 29 33 56	Mon. 400-3----- Mon. 400-5-----	59.52 69.04	Mon. 401-13-----	45 32 49.49 70 41 23.31	214 07 14 14 12 38	Mon. 401-12----- Mon. 402-----	312.46 23.06
Mon. 400-5-----	45 34 08.32 70 41 19.34	209 33 55 349 51 26	Mon. 400-4----- Mon. 400-6-----	69.04 51.83	Mon. 402-----	45 32 48.77 70 41 23.57	194 12 38 21 19 47	Mon. 401-13----- Mon. 402-1-----	23.06 168.99
Mon. 400-6-----	45 34 06.67 70 41 18.92	169 51 26 308 09 11	Mon. 400-5----- Mon. 400-7-----	51.83 66.00	Mon. 402-1-----	45 32 43.67 70 41 26.40	201 19 45 36 05 25	Mon. 402----- Mon. 402-2-----	168.99 200.26
Mon. 400-7-----	45 34 05.35 70 41 16.53	128 09 13 266 49 26	Mon. 400-6----- Mon. 400-8-----	66.00 94.14	Mon. 402-2-----	45 32 38.43 70 41 31.84	216 05 21 23 24 47	Mon. 402-1----- Mon. 402-3-----	200.26 126.18
Mon. 400-8-----	45 34 05.52 70 41 12.20	86 49 29 329 09 41	Mon. 400-7----- Mon. 400-9-----	94.14 133.22	Mon. 402-3-----	45 32 34.68 70 41 34.15	203 24 45 45 36 15	Mon. 402-2----- Mon. 402-4-----	126.18 85.30

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 402-4....	45 32 32.75 70 41 36.96	225 36 13 48 41 25	Mon. 402-3..... Mon. 402-5.....	85.30 83.01	Mon. 404-7....	45 31 10.06 70 42 42.99	226 36 45 75 05 12	Mon. 404-6..... Mon. 404-8.....	26.78 79.73
Mon. 402-5....	45 32 30.97 70 41 39.83	228 41 23 54 20 25	Mon. 402-4..... Mon. 402-6.....	83.01 196.90	Mon. 404-8....	45 31 09.40 70 42 46.54	255 05 10 68 34 30	Mon. 404-7..... Mon. 404-9.....	79.73 177.14
Mon. 402-6....	45 32 27.25 70 41 47.20	234 20 20 29 41 59	Mon. 402-5..... Mon. 402-7.....	196.90 103.63	Mon. 404-9....	45 31 07.30 70 42 54.14	248 34 25 114 44 25	Mon. 404-8..... Mon. 404-10.....	177.14 53.34
Mon. 402-7....	45 32 24.34 70 41 49.57	209 41 57 358 32 37	Mon. 402-6..... Mon. 402-8.....	103.63 160.88	Mon. 404-10....	45 31 08.03 70 42 56.37	294 44 23 95 37 51	Mon. 404-9..... Mon. 404-11.....	53.34 52.73
Mon. 402-8....	45 32 19.13 70 41 49.38	178 32 37 19 26 48	Mon. 402-7..... Mon. 402-9.....	160.88 379.51	Mon. 404-11....	45 31 08.20 70 42 58.79	275 37 49 52 38 13	Mon. 404-10..... Mon. 404-12.....	52.73 130.84
Mon. 402-9....	45 32 07.54 70 41 55.21	199 26 44 46 46 46	Mon. 402-8..... Mon. 402-10.....	379.51 99.60	Mon. 404-12....	45 31 05.62 70 43 03.58	232 38 10 31 38 34	Mon. 404-11..... Mon. 404-13.....	130.84 78.11
Mon. 402-10....	45 32 05.33 70 41 58.55	226 46 44 28 40 30	Mon. 402-9..... Mon. 402-11.....	99.60 189.26	Mon. 404-13....	45 31 03.47 70 43 05.47	211 38 33 57 18 30	Mon. 404-12..... Mon. 404-14.....	78.11 213.59
Mon. 402-11....	45 31 59.95 70 42 02.74	208 40 27 35 22 48	Mon. 402-10..... Mon. 402-12.....	189.26 99.81	Mon. 404-14....	45 30 59.73 70 43 13.75	237 18 24 41 32 36	Mon. 404-13..... Mon. 404-15.....	213.59 166.38
Mon. 402-12....	45 31 57.31 70 42 05.40	215 22 46 353 39 57	Mon. 402-11..... Mon. 402-13.....	99.81 103.26	Mon. 404-15....	45 30 55.70 70 43 18.84	221 32 32 27 05 04	Mon. 404-14..... Mon. 404-16.....	166.38 212.71
Mon. 402-13....	45 31 53.99 70 42 04.87	173 39 57 311 17 46	Mon. 402-12..... Mon. 402-14.....	103.26 176.77	Mon. 404-16....	45 30 49.56 70 43 23.30	207 05 01 12 01 45	Mon. 404-15..... Mon. 404-17.....	212.71 402.26
Mon. 402-14....	45 31 47.80 70 41 58.75	131 17 50 2 36 52	Mon. 402-13..... Mon. 402-15.....	176.77 42.96	Mon. 404-17....	45 30 36.82 70 43 27.16	192 01 42 358 31 55	Mon. 404-16..... Mon. 404-18.....	402.26 129.01
Mon. 402-15....	45 31 48.82 70 41 58.84	182 36 52 49 12 37	Mon. 402-14..... Mon. 402-16.....	42.96 48.07	Mon. 404-18....	45 30 32.64 70 43 27.01	178 31 55 342 20 12	Mon. 404-17..... Mon. 404-19.....	129.01 171.82
Mon. 402-16....	45 31 47.80 70 42 00.52	229 12 36 99 21 07	Mon. 402-15..... Mon. 403.....	48.07 11.38	Mon. 404-19....	45 30 27.34 70 43 24.61	162 20 14 350 22 12	Mon. 404-18..... Mon. 404-20.....	171.82 110.90
Mon. 403.....	45 31 47.86 70 42 01.04	279 21 07 83 56 35	Mon. 402-16..... Mon. 403-1.....	11.38 207.61	Mon. 404-20....	45 30 23.80 70 43 23.75	170 22 13 317 33 17	Mon. 404-19..... Mon. 404-21.....	110.90 61.01
Mon. 403-1....	45 31 47.15 70 42 10.55	263 56 28 64 32 13	Mon. 403..... Mon. 403-2.....	207.61 44.49	Mon. 404-21....	45 30 22.34 70 43 21.86	137 33 18 289 16 46	Mon. 404-20..... Mon. 404-22.....	61.01 153.24
Mon. 403-2....	45 31 46.53 70 42 12.40	244 32 12 61 24 14	Mon. 403-1..... Mon. 403-3.....	44.49 215.49	Mon. 404-22....	45 30 20.70 70 43 15.19	109 16 51 302 02 55	Mon. 404-21..... Mon. 404-23.....	153.24 170.31
Mon. 403-3....	45 31 43.19 70 42 21.12	241 24 08 51 32 47	Mon. 403-2..... Mon. 403-4.....	215.49 116.50	Mon. 404-23....	45 30 17.77 70 43 08.54	122 02 59 294 46 10	Mon. 404-22..... Mon. 404-24.....	170.31 74.05
Mon. 403-4....	45 31 40.84 70 42 25.33	231 32 44 23 55 40	Mon. 403-3..... Mon. 403-5.....	116.50 56.42	Mon. 404-24....	45 30 16.77 70 43 05.45	114 46 12 292 35 29	Mon. 404-23..... Mon. 404-25.....	74.05 66.36
Mon. 403-5....	45 31 39.17 70 42 26.38	203 55 39 6 28 52	Mon. 403-4..... Mon. 403-6.....	56.42 88.71	Mon. 404-25....	45 30 15.94 70 43 02.63	112 35 31 261 29 23	Mon. 404-24..... Mon. 404-26.....	66.36 112.18
Mon. 403-6....	45 31 36.32 70 42 26.84	186 28 51 10 20 20	Mon. 403-5..... Mon. 403-7.....	88.71 73.16	Mon. 404-26....	45 30 16.48 70 42 57.52	81 29 27 323 28 08	Mon. 404-25..... Mon. 404-27.....	112.18 87.65
Mon. 403-7....	45 31 33.99 70 42 27.45	190 20 20 46 49 06	Mon. 403-6..... Mon. 403-8.....	73.16 67.25	Mon. 404-27....	45 30 14.20 70 42 55.11	143 28 10 318 40 08	Mon. 404-26..... Mon. 405.....	87.65 90.78
Mon. 403-8....	45 31 32.50 70 42 29.71	226 49 04 55 28 35	Mon. 403-7..... Mon. 403-9.....	67.25 63.15	Mon. 405.....	45 30 11.99 70 42 52.35	138 40 10 269 40 06	Mon. 404-27..... Mon. 405-1.....	90.78 4.68
Mon. 403-9....	45 31 31.34 70 42 32.10	235 28 33 54 00 07	Mon. 403-8..... Mon. 403-10.....	63.15 83.42	Mon. 405-1....	45 30 11.99 70 42 52.14	89 40 06 296 52 25	Mon. 405..... Mon. 405-2.....	4.68 93.96
Mon. 403-10....	45 31 29.75 70 42 35.22	234 00 05 11 09 22	Mon. 403-9..... Mon. 404.....	83.42 263.53	Mon. 405-2....	45 30 10.62 70 42 48.28	116 52 28 325 19 27	Mon. 405-1..... Mon. 405-3.....	93.96 80.59
Mon. 404.....	45 31 21.38 70 42 37.56	191 09 20 7 41 08	Mon. 403-10..... Mon. 404-1.....	263.53 4.43	Mon. 405-3....	45 30 08.47 70 42 46.16	145 19 29 314 30 18	Mon. 405-2..... Mon. 405-4.....	80.59 71.18
Mon. 404-1....	45 31 21.23 70 42 37.59	187 41 08 28 51 13	Mon. 404..... Mon. 404-2.....	4.43 74.08	Mon. 405-4....	45 30 06.85 70 42 43.82	134 30 20 12 22 00	Mon. 405-3..... Mon. 405-5.....	71.18 20.07
Mon. 404-2....	45 31 19.13 70 42 39.24	208 51 12 1 50 09	Mon. 404-1..... Mon. 404-3.....	74.08 99.86	Mon. 405-5....	45 30 06.22 70 42 44.02	192 22 00 29 31 50	Mon. 405-4..... Mon. 405-6.....	20.07 53.76
Mon. 404-3....	45 31 15.90 70 42 39.39	181 50 09 23 11 44	Mon. 404-2..... Mon. 404-4.....	99.86 57.58	Mon. 405-6....	45 30 04.70 70 42 45.24	209 31 49 23 14 29	Mon. 405-5..... Mon. 405-7.....	53.76 47.49
Mon. 404-4....	45 31 14.18 70 42 40.43	203 11 43 27 43 01	Mon. 404-3..... Mon. 404-5.....	57.58 49.32	Mon. 405-7....	45 30 03.29 70 42 46.11	203 14 28 339 08 39	Mon. 405-6..... Mon. 405-8.....	47.49 189.15
Mon. 404-5....	45 31 12.77 70 42 41.49	207 43 00 11 29 23	Mon. 404-4..... Mon. 404-6.....	49.32 66.43	Mon. 405-8....	45 29 57.56 70 42 43.00	159 08 41 1 17 04	Mon. 405-7..... Mon. 405-9.....	189.15 96.19
Mon. 404-6....	45 31 10.66 70 42 42.10	191 29 23 46 36 46	Mon. 404-5..... Mon. 404-7.....	66.43 26.78	Mon. 405-9....	45 29 54.45 70 42 43.10	181 17 04 15 43 19	Mon. 405-8..... Mon. 405-10.....	96.19 142.81

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
Mon. 405-10.....	45 29 50.00 70 42 44.89	195 43 18 27 55 44	Mon. 405-9..... Mon. 405-11.....	142.81 75.05	Mon. 408.....	45 28 00.02 70 41 36.25	193 22 30 8 20 57	Mon. 407-9..... Mon. 408-1.....	360.65 24.34
Mon. 405-11.....	45 29 47.85 70 42 46.50	207 55 43 30 42 09	Mon. 405-10..... Mon. 405-12.....	75.05 146.24	Mon. 408-1.....	45 27 59.24 70 41 36.41	188 20 57 338 21 57	Mon. 408..... Mon. 408-2.....	24.34 262.79
Mon. 405-12.....	45 29 43.78 70 42 49.94	210 42 06 40 29 49	Mon. 405-11..... Mon. 405-13.....	146.24 210.76	Mon. 408-2.....	45 27 51.33 70 41 31.95	158 22 00 304 02 17	Mon. 408-1..... Mon. 408-3.....	262.79 110.08
Mon. 405-13.....	45 29 38.58 70 42 56.25	220 29 44 34 20 16	Mon. 405-12..... Mon. 405-14.....	210.76 230.37	Mon. 408-3.....	45 27 49.33 70 41 27.75	124 02 20 276 47 32	Mon. 408-2..... Mon. 408-4.....	110.08 117.95
Mon. 405-14.....	45 29 32.42 70 43 02.23	214 20 12 21 37 56	Mon. 405-13..... Mon. 405-15.....	230.37 240.49	Mon. 408-4.....	45 27 48.88 70 41 22.36	96 47 36 274 52 21	Mon. 408-3..... Mon. 408-5.....	117.95 239.97
Mon. 405-15.....	45 29 25.18 70 43 06.31	201 37 53 344 16 58	Mon. 405-14..... Mon. 406.....	240.49 282.53	Mon. 408-5.....	45 27 48.22 70 41 11.35	94 52 29 286 23 59	Mon. 408-4..... Mon. 408-6.....	239.97 180.38
Mon. 406.....	45 29 16.37 70 43 02.79	164 17 00 345 57 02	Mon. 405-15..... Mon. 406-1.....	282.53 150.76	Mon. 408-6.....	45 27 46.57 70 41 03.39	106 24 05 294 32 39	Mon. 408-5..... Mon. 408-7.....	180.38 82.60
Mon. 406-1.....	45 29 11.64 70 43 01.10	165 57 03 316 30 38	Mon. 406..... Mon. 406-2.....	150.76 92.03	Mon. 408-7.....	45 27 45.46 70 40 59.93	114 32 41 319 42 56	Mon. 408-6..... Mon. 408-8.....	82.60 73.33
Mon. 406-2.....	45 29 09.47 70 42 58.19	136 30 40 305 53 07	Mon. 406-1..... Mon. 406-3.....	92.03 234.42	Mon. 408-8.....	45 27 43.65 70 40 57.75	139 42 58 327 59 00	Mon. 408-7..... Mon. 408-9.....	73.33 44.83
Mon. 406-3.....	45 29 05.02 70 42 49.44	125 53 13 316 11 28	Mon. 406-2..... Mon. 406-4.....	234.42 160.80	Mon. 408-9.....	45 27 42.42 70 40 56.65	147 59 01 356 42 46	Mon. 408-8..... Mon. 408-10.....	44.83 68.06
Mon. 406-4.....	45 29 01.26 70 42 44.32	136 11 32 303 45 09	Mon. 406-3..... Mon. 406-5.....	160.80 114.02	Mon. 408-10.....	45 27 40.22 70 40 56.48	176 42 46 348 35 51	Mon. 408-9..... Mon. 408-11.....	68.06 298.60
Mon. 406-5.....	45 28 59.21 70 42 39.95	123 45 12 321 43 07	Mon. 406-4..... Mon. 406-6.....	114.02 389.19	Mon. 408-11.....	45 27 30.74 70 40 53.76	168 35 53 358 18 41	Mon. 408-10..... Mon. 409.....	298.60 199.51
Mon. 406-6.....	45 28 49.32 70 42 28.85	141 43 15 306 39 16	Mon. 406-5..... Mon. 406-7.....	389.19 262.64	Mon. 409.....	45 27 24.28 70 40 53.49	178 18 41 356 54 24	Mon. 408-11..... Mon. 409-1.....	199.51 72.81
Mon. 406-7.....	45 28 44.24 70 42 19.15	126 39 23 242 24 06	Mon. 406-6..... Mon. 406-8.....	262.64 74.08	Mon. 409-1.....	45 27 21.92 70 40 53.31	176 54 24 9 47 37	Mon. 409..... Mon. 409-2.....	72.81 251.69
Mon. 406-8.....	45 28 45.35 70 42 16.13	62 24 08 278 54 20	Mon. 406-7..... Mon. 406-9.....	74.08 60.34	Mon. 409-2.....	45 27 13.89 70 40 55.28	189 47 36 0 57 24	Mon. 409-1..... Mon. 409-3.....	251.69 126.25
Mon. 406-9.....	45 28 45.04 70 42 13.38	98 54 22 286 00 46	Mon. 406-8..... Mon. 406-10.....	60.34 98.50	Mon. 409-3.....	45 27 09.80 70 40 55.37	180 57 24 330 38 10	Mon. 409-2..... Mon. 409-4.....	126.25 56.86
Mon. 406-10.....	45 28 44.16 70 42 09.02	106 00 49 278 32 59	Mon. 406-9..... Mon. 406-11.....	98.50 85.78	Mon. 409-4.....	45 27 08.20 70 40 54.09	150 38 11 277 03 05	Mon. 409-3..... Mon. 409-5.....	56.86 216.58
Mon. 406-11.....	45 28 43.75 70 42 05.12	98 33 02 249 24 14	Mon. 406-10..... Mon. 406-12.....	85.78 75.70	Mon. 409-5.....	45 27 07.33 70 40 44.20	97 03 12 264 52 44	Mon. 409-4..... Mon. 409-6.....	216.58 150.85
Mon. 406-12.....	45 28 44.61 70 42 01.85	69 24 16 277 53 11	Mon. 406-11..... Mon. 406-13.....	75.70 36.33	Mon. 409-6.....	45 27 07.77 70 40 37.29	84 52 49 280 57 18	Mon. 409-5..... Mon. 409-7.....	150.85 108.69
Mon. 406-13.....	45 28 44.45 70 42 00.20	97 53 12 302 37 02	Mon. 406-12..... Mon. 406-14.....	36.33 63.77	Mon. 409-7.....	45 27 07.10 70 40 32.38	100 57 22 299 30 44	Mon. 409-6..... Mon. 409-8.....	108.69 310.17
Mon. 406-14.....	45 28 43.34 70 41 57.72	122 37 04 313 32 44	Mon. 406-13..... Mon. 407.....	63.77 206.94	Mon. 409-8.....	45 27 02.15 70 40 19.95	119 30 53 293 21 59	Mon. 409-7..... Mon. 409-9.....	310.17 164.36
Mon. 407.....	45 28 38.72 70 41 50.82	133 32 49 316 12 42	Mon. 406-14..... Mon. 407-1.....	206.94 45.62	Mon. 409-9.....	45 27 00.04 70 40 13.01	113 22 04 312 31 43	Mon. 409-8..... Mon. 409-10.....	164.36 113.54
Mon. 407-1.....	45 28 37.66 70 41 49.36	136 12 43 324 43 26	Mon. 407..... Mon. 407-2.....	45.62 140.48	Mon. 409-10.....	45 26 57.56 70 40 09.16	132 31 46 295 06 37	Mon. 409-9..... Mon. 409-11.....	113.54 216.58
Mon. 407-2.....	45 28 33.94 70 41 45.63	144 43 29 306 25 15	Mon. 407-1..... Mon. 407-3.....	140.48 180.94	Mon. 409-11.....	45 26 54.58 70 40 00.14	115 06 43 316 10 42	Mon. 409-10..... Mon. 409-12.....	216.58 79.66
Mon. 407-3.....	45 28 30.46 70 41 38.92	126 25 20 290 50 03	Mon. 407-2..... Mon. 407-4.....	180.94 116.13	Mon. 409-12.....	45 26 52.72 70 39 57.60	136 10 44 316 19 58	Mon. 409-11..... Mon. 409-13.....	79.66 184.13
Mon. 407-4.....	45 28 29.12 70 41 33.93	110 50 67 320 44 31	Mon. 407-3..... Mon. 407-5.....	116.13 56.86	Mon. 409-13.....	45 26 48.40 70 39 51.75	136 20 02 326 11 38	Mon. 409-12..... Mon. 409-14.....	184.13 55.46
Mon. 407-5.....	45 28 27.70 70 41 32.27	140 44 32 359 33 40	Mon. 407-4..... Mon. 407-6.....	56.86 51.03	Mon. 409-14.....	45 26 46.91 70 39 50.33	146 11 39 312 52 38	Mon. 409-13..... Mon. 409-15.....	55.46 50.20
Mon. 407-6.....	45 28 26.04 70 41 32.25	179 33 40 359 51 00	Mon. 407-5..... Mon. 407-7.....	51.03 90.14	Mon. 409-15.....	45 26 45.80 70 39 48.63	132 52 39 286 53 56	Mon. 409-14..... Mon. 409-16.....	50.20 99.03
Mon. 407-7.....	45 28 23.12 70 41 32.24	179 51 00 358 19 46	Mon. 407-6..... Mon. 407-8.....	90.14 112.12	Mon. 409-16.....	45 26 44.87 70 39 44.27	106 53 59 271 04 07	Mon. 409-15..... Mon. 409-17.....	99.03 566.68
Mon. 407-8.....	45 28 19.49 70 41 32.09	178 19 46 1 33 04	Mon. 407-7..... Mon. 407-9.....	112.12 250.27	Mon. 409-17.....	45 26 44.52 70 39 18.20	91 04 25 279 49 57	Mon. 409-16..... Mon. 409-18.....	566.68 102.45
Mon. 407-9.....	45 28 11.39 70 41 32.40	181 33 04 13 22 32	Mon. 407-8..... Mon. 408.....	250.27 360.65	Mon. 409-18.....	45 26 43.96 70 39 13.56	99 50 00 286 10 04	Mon. 409-17..... Mon. 409-19.....	102.45 141.80



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 409-19.....	45 26 42.68 70 39 07.29	106 10 08 285 33 57	Mon. 409-18..... Mon. 410.....	141.80 53.07	Mon. 411-14.....	45 25 25.29 70 37 45.45	129 36 57 338 27 29	Mon. 411-13..... Mon. 411-15.....	48.79 70.03
Mon. 410.....	45 26 42.22 70 39 04.94	105 33 59 298 17 21	Mon. 409-19..... Mon. 410-1.....	53.07 5.27	Mon. 411-15.....	45 25 23.18 70 37 44.27	158 27 30 318 36 28	Mon. 411-14..... Mon. 411-16.....	70.03 61.42
Mon. 410-1.....	45 26 42.14 70 39 04.72	118 17 21 337 53 29	Mon. 410..... Mon. 410-2.....	5.27 103.86	Mon. 411-16.....	45 25 21.69 70 37 42.40	138 36 29 20 41 27	Mon. 411-15..... Mon. 412.....	61.42 5.94
Mon. 410-2.....	45 26 39.02 70 38 02.92	157 53 30 355 59 44	Mon. 410-1..... Mon. 410-3.....	103.86 140.40	Mon. 412.....	45 25 21.51 70 37 42.50	200 41 27 1 15 19	Mon. 411-16..... Mon. 412-1.....	5.94 56.50
Mon. 410-3.....	45 26 34.48 70 39 02.47	175 59 44 329 35 19	Mon. 410-2..... Mon. 410-4.....	140.40 357.07	Mon. 412-1.....	45 25 19.68 70 37 42.55	181 15 19 8 39 41	Mon. 412..... Mon. 412-2.....	56.50 55.85
Mon. 410-4.....	45 26 24.51 70 38 54.16	149 35 25 8 22 29	Mon. 410-3..... Mon. 410-5.....	357.07 283.38	Mon. 412-2.....	45 25 17.90 70 37 42.94	188 39 41 329 50 44	Mon. 412-1..... Mon. 412-3.....	55.85 42.11
Mon. 410-5.....	45 26 16.31 70 38 48.29	153 14 45 311 50 06	Mon. 410-4..... Mon. 410-5.....	283.38 145.92	Mon. 412-3.....	45 25 16.72 70 37 41.97	149 50 45 2 08 48	Mon. 412-2..... Mon. 412-4.....	42.11 57.29
Mon. 410-6.....	45 26 13.16 70 38 43.28	131 50 10 290 01 46	Mon. 410-5..... Mon. 410-7.....	145.92 141.92	Mon. 412-4.....	45 25 14.86 70 37 42.06	182 08 48 47 42 07	Mon. 412-3..... Mon. 412-5.....	57.29 56.86
Mon. 410-7.....	45 26 11.58 70 38 37.15	110 01 50 294 30 10	Mon. 410-6..... Mon. 410-8.....	141.92 45.08	Mon. 412-5.....	45 25 13.62 70 37 44.00	227 42 06 37 55 45	Mon. 412-4..... Mon. 412-6.....	56.86 43.12
Mon. 410-8.....	45 26 10.98 70 38 35.26	114 30 11 8 22 29	Mon. 410-7..... Mon. 410-9.....	45.08 77.39	Mon. 412-6.....	45 25 12.52 70 37 45.22	217 55 44 35 05 39	Mon. 412-5..... Mon. 412-7.....	43.12 19.84
Mon. 410-9.....	45 26 08.50 70 38 35.78	188 22 29 19 05 57	Mon. 410-8..... Mon. 410-10.....	77.39 135.54	Mon. 412-7.....	45 25 11.99 70 37 45.74	215 05 39 354 45 32	Mon. 412-6..... Mon. 412-8.....	19.84 76.52
Mon. 410-10.....	45 26 04.35 70 38 37.82	199 05 56 351 53 45	Mon. 410-9..... Mon. 410-11.....	135.54 95.98	Mon. 412-8.....	45 25 09.53 70 37 45.42	174 45 32 69 25 49	Mon. 412-7..... Mon. 412-9.....	76.52 98.65
Mon. 410-11.....	45 26 01.27 70 38 37.20	171 53 45 333 40 07	Mon. 410-10..... Mon. 410-12.....	95.98 66.09	Mon. 412-9.....	45 25 08.40 70 37 49.67	249 25 46 53 51 58	Mon. 412-8..... Mon. 412-10.....	98.65 50.33
Mon. 410-12.....	45 25 59.35 70 38 35.85	153 40 08 319 21 36	Mon. 410-11..... Mon. 410-13.....	66.09 86.70	Mon. 412-10.....	45 25 07.44 70 37 51.54	233 51 57 324 18 28	Mon. 412-9..... Mon. 412-11.....	50.33 24.90
Mon. 410-13.....	45 25 57.22 70 38 33.26	139 21 38 327 14 36	Mon. 410-12..... Mon. 410-14.....	86.70 223.66	Mon. 412-11.....	45 25 06.79 70 37 50.87	144 18 28 1 11 43	Mon. 412-10..... Mon. 412-12.....	24.90 33.18
Mon. 410-14.....	45 25 51.13 70 38 27.69	147 14 40 311 36 41	Mon. 410-13..... Mon. 410-15.....	223.66 312.59	Mon. 412-12.....	45 25 05.71 70 37 50.90	181 11 43 61 04 04	Mon. 412-11..... Mon. 412-13.....	33.18 50.60
Mon. 410-15.....	45 25 44.41 70 38 16.94	131 36 49 313 03 20	Mon. 410-14..... Mon. 411.....	312.59 60.25	Mon. 412-13.....	45 25 04.92 70 37 52.94	241 04 03 60 23 53	Mon. 412-12..... Mon. 412-14.....	50.60 33.56
Mon. 411.....	45 25 43.08 70 38 14.91	133 03 22 272 40 20	Mon. 410-15..... Mon. 411-1.....	60.25 1.04	Mon. 412-14.....	45 25 04.38 70 37 54.28	240 23 52 2 10 05	Mon. 412-13..... Mon. 412-15.....	33.56 94.12
Mon. 411-1.....	45 25 43.07 70 38 14.86	92 40 20 343 50 21	Mon. 411..... Mon. 411-2.....	1.04 99.57	Mon. 412-15.....	45 25 01.34 70 37 54.44	182 10 05 343 28 35	Mon. 412-14..... Mon. 412-16.....	94.12 74.16
Mon. 411-2.....	45 25 39.97 70 38 13.59	163 50 22 307 59 19	Mon. 411-1..... Mon. 411-3.....	99.57 53.64	Mon. 412-16.....	45 24 59.03 70 37 53.47	163 28 36 19 04 09	Mon. 412-15..... Mon. 412-17.....	74.16 49.38
Mon. 411-3.....	45 25 38.91 70 38 11.64	127 59 20 293 45 55	Mon. 411-2..... Mon. 411-4.....	53.64 36.44	Mon. 412-17.....	45 24 57.52 70 37 54.22	199 04 08 68 19 31	Mon. 412-16..... Mon. 412-18.....	49.38 78.64
Mon. 411-4.....	45 25 38.43 70 38 10.11	113 45 56 275 53 07	Mon. 411-3..... Mon. 411-5.....	36.44 182.77	Mon. 412-18.....	45 24 56.58 70 37 57.58	248 19 29 99 21 33	Mon. 412-17..... Mon. 412-19.....	78.64 186.69
Mon. 411-5.....	45 25 37.82 70 38 01.74	95 53 13 291 28 43	Mon. 411-4..... Mon. 411-6.....	182.77 80.74	Mon. 412-19.....	45 24 57.56 70 38 06.05	279 21 27 43 48 50	Mon. 412-18..... Mon. 412-20.....	186.69 48.14
Mon. 411-6.....	45 25 36.86 70 37 58.29	111 28 45 272 01 18	Mon. 411-5..... Mon. 411-7.....	80.74 140.38	Mon. 412-20.....	45 24 56.44 70 38 07.58	223 48 49 357 27 14	Mon. 412-19..... Mon. 412-21.....	48.14 32.78
Mon. 411-7.....	45 25 36.70 70 37 51.84	92 01 23 314 12 31	Mon. 411-6..... Mon. 411-8.....	140.38 72.45	Mon. 412-21.....	45 24 55.38 70 38 07.51	177 27 14 48 34 05	Mon. 412-20..... Mon. 412-22.....	32.78 68.55
Mon. 411-8.....	45 25 35.07 70 37 49.45	134 12 33 359 43 22	Mon. 411-7..... Mon. 411-9.....	72.45 39.69	Mon. 412-22.....	45 24 53.91 70 38 09.88	228 34 03 356 54 56	Mon. 412-21..... Mon. 412-23.....	68.55 93.51
Mon. 411-9.....	45 25 33.78 70 37 49.44	179 43 22 7 52 43	Mon. 411-8..... Mon. 411-10.....	39.69 54.87	Mon. 412-23.....	45 24 50.88 70 38 09.64	176 54 56 9 18 56	Mon. 412-22..... Mon. 412-24.....	93.51 69.56
Mon. 411-10.....	45 25 32.02 70 37 49.78	187 52 43 3 29 20	Mon. 411-9..... Mon. 411-11.....	54.87 38.47	Mon. 412-24.....	45 24 48.66 70 38 10.16	189 18 56 2 04 49	Mon. 412-23..... Mon. 412-25.....	69.56 65.17
Mon. 411-11.....	45 25 30.78 70 37 49.89	183 29 20 341 55 55	Mon. 411-10..... Mon. 411-12.....	38.47 84.20	Mon. 412-25.....	45 24 46.55 70 38 10.27	182 04 49 339 22 39	Mon. 412-24..... Mon. 412-26.....	65.17 77.53
Mon. 411-12.....	45 25 28.18 70 37 48.69	161 55 56 330 30 20	Mon. 411-11..... Mon. 411-13.....	84.20 66.80	Mon. 412-26.....	45 24 44.20 70 38 09.02	159 22 40 340 01 07	Mon. 412-25..... Mon. 412-27.....	77.53 48.37
Mon. 411-13.....	45 25 26.30 70 37 47.18	150 30 21 309 36 56	Mon. 411-12..... Mon. 411-14.....	66.80 48.79	Mon. 412-27.....	45 24 42.73 70 38 08.26	160 01 07 354 13 11	Mon. 412-26..... Mon. 412-28.....	48.37 64.16

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 412-28-----	45 24 40.66 70 38 07.96	174 13 11 21 14 24	Mon. 412-27----- Mon. 412-29-----	64.16 16.81	Mon. 414-8-----	45 23 59.85 70 37 44.48	278 21 25 42 00 15	Mon. 414-7----- Mon. 414-9-----	168.63 84.94
Mon. 412-29-----	45 24 40.16 70 38 08.24	201 14 24 315 12 17	Mon. 412-28----- Mon. 412-30-----	16.81 46.48	Mon. 414-9-----	45 23 57.80 70 37 47.09	222 00 13 76 17 35	Mon. 414-8----- Mon. 414-10-----	84.94 34.98
Mon. 412-30-----	45 24 39.09 70 38 06.73	135 12 18 337 48 41	Mon. 412-29----- Mon. 413-----	46.48 61.59	Mon. 414-10-----	45 23 57.54 70 37 48.65	256 17 34 104 29 15	Mon. 414-9----- Mon. 414-11-----	34.98 75.44
Mon. 413-----	45 24 37.24 70 38 05.66	157 48 41 334 09 03	Mon. 412-30----- Mon. 413-1-----	61.59 75.06	Mon. 414-11-----	45 23 58.15 70 37 52.01	284 29 13 68 22 16	Mon. 414-10----- Mon. 414-12-----	75.44 33.40
Mon. 413-1-----	45 24 35.05 70 38 04.16	154 09 04 310 47 28	Mon. 413----- Mon. 413-2-----	75.06 89.94	Mon. 414-12-----	45 23 57.75 70 37 53.44	248 22 15 50 32 18	Mon. 414-11----- Mon. 414-13-----	33.40 24.09
Mon. 413-2-----	45 24 33.15 70 38 01.03	130 47 30 343 50 08	Mon. 413-1----- Mon. 413-3-----	89.94 58.91	Mon. 414-13-----	45 23 57.25 70 37 54.30	230 32 17 57 00 37	Mon. 414-12----- Mon. 414-14-----	24.09 82.52
Mon. 413-3-----	45 24 31.32 70 38 00.27	163 50 09 293 25 39	Mon. 413-2----- Mon. 413-4-----	58.91 25.84	Mon. 414-14-----	45 23 55.80 70 37 57.48	237 00 34 64 35 14	Mon. 414-13----- Mon. 414-15-----	82.52 85.95
Mon. 413-4-----	45 24 30.98 70 37 59.18	113 25 40 285 04 33	Mon. 413-3----- Mon. 413-5-----	25.84 35.93	Mon. 414-15-----	45 23 54.60 70 38 01.05	244 35 11 46 56 46	Mon. 414-14----- Mon. 414-16-----	85.95 151.27
Mon. 413-5-----	45 24 30.68 70 37 57.59	105 04 34 291 01 18	Mon. 413-4----- Mon. 413-6-----	35.93 51.06	Mon. 414-16-----	45 23 51.26 70 38 06.13	226 56 42 33 24 07	Mon. 414-15----- Mon. 414-17-----	151.27 157.75
Mon. 413-6-----	45 24 30.09 70 37 55.40	111 01 20 327 27 32	Mon. 413-5----- Mon. 413-7-----	51.06 42.38	Mon. 414-17-----	45 23 46.99 70 38 10.12	213 24 04 17 25 35	Mon. 414-16----- Mon. 414-18-----	157.75 64.58
Mon. 413-7-----	45 24 28.93 70 37 54.35	147 27 33 333 25 41	Mon. 413-6----- Mon. 413-8-----	42.38 79.26	Mon. 414-18-----	45 23 44.99 70 38 11.01	197 25 34 35 30 32	Mon. 414-17----- Mon. 414-19-----	64.58 68.55
Mon. 413-8-----	45 24 26.64 70 37 52.72	153 25 42 304 44 20	Mon. 413-7----- Mon. 413-9-----	79.26 54.08	Mon. 414-19-----	45 23 43.19 70 38 12.84	215 30 30 357 13 04	Mon. 414-18----- Mon. 414-20-----	68.55 81.78
Mon. 413-9-----	45 24 25.64 70 37 50.67	124 44 21 277 19 52	Mon. 413-8----- Mon. 413-10-----	54.08 129.08	Mon. 414-20-----	45 23 40.54 70 38 12.66	177 13 04 5 56 32	Mon. 414-19----- Mon. 414-21-----	81.78 210.56
Mon. 413-10-----	45 24 25.10 70 37 44.78	97 19 56 286 48 17	Mon. 413-9----- Mon. 413-11-----	129.08 150.78	Mon. 414-21-----	45 23 33.76 70 38 13.66	185 56 31 25 25 25	Mon. 414-20----- Mon. 414-22-----	210.56 85.40
Mon. 413-11-----	45 24 23.69 70 37 38.15	106 48 22 292 40 46	Mon. 413-10----- Mon. 413-12-----	150.78 64.98	Mon. 414-22-----	45 23 31.26 70 38 15.34	205 25 23 40 28 04	Mon. 414-21----- Mon. 414-23-----	85.40 63.77
Mon. 413-12-----	45 24 22.88 70 37 35.39	112 40 48 276 19 01	Mon. 413-11----- Mon. 413-13-----	64.98 115.59	Mon. 414-23-----	45 23 29.69 70 38 17.25	220 28 02 24 49 04	Mon. 414-22----- Mon. 414-24-----	63.77 111.54
Mon. 413-13-----	45 24 22.47 70 37 30.10	96 19 05 307 52 38	Mon. 413-12----- Mon. 413-14-----	115.59 64.96	Mon. 414-24-----	45 23 26.41 70 38 19.40	204 49 02 7 20 02	Mon. 414-23----- Mon. 414-25-----	111.54 118.22
Mon. 413-14-----	45 24 21.18 70 37 27.75	127 52 40 326 24 43	Mon. 413-13----- Mon. 413-15-----	64.96 90.14	Mon. 414-25-----	45 23 22.61 70 38 20.09	187 20 01 19 17 41	Mon. 414-24----- Mon. 414-26-----	118.22 42.51
Mon. 413-15-----	45 24 18.74 70 37 25.45	146 24 45 341 00 08	Mon. 413-14----- Mon. 413-16-----	90.14 102.22	Mon. 414-26-----	45 23 21.31 70 38 20.74	199 17 41 37 49 34	Mon. 414-25----- Mon. 414-27-----	42.51 46.56
Mon. 413-16-----	45 24 15.61 70 37 23.92	161 00 09 323 49 02	Mon. 413-15----- Mon. 413-17-----	102.22 61.74	Mon. 414-27-----	45 23 20.12 70 38 22.05	217 49 33 310 43 23	Mon. 414-26----- Mon. 414-28-----	46.56 59.72
Mon. 413-17-----	45 24 14.00 70 37 22.25	143 49 03 333 12 26	Mon. 413-16----- Mon. 413-18-----	61.74 50.85	Mon. 414-28-----	45 23 18.86 70 38 19.97	130 43 24 296 33 36	Mon. 414-27----- Mon. 414-29-----	59.72 63.81
Mon. 413-18-----	45 24 12.53 70 37 21.20	153 12 27 322 33 32	Mon. 413-17----- Mon. 413-19-----	50.85 91.15	Mon. 414-29-----	45 23 17.93 70 38 17.35	116 33 38 331 16 40	Mon. 414-28----- Mon. 414-30-----	63.81 72.67
Mon. 413-19-----	45 24 10.18 70 37 18.65	142 33 33 21 44 03	Mon. 413-18----- Mon. 414-----	91.15 36.21	Mon. 414-30-----	45 23 15.87 70 38 15.74	151 16 41 358 52 45	Mon. 414-29----- Mon. 414-31-----	72.67 47.32
Mon. 414-----	45 24 09.09 70 37 19.27	201 44 02 25 54 30	Mon. 413-19----- Mon. 414-1-----	36.21 30.59	Mon. 414-31-----	45 23 14.34 70 38 15.70	178 52 45 297 58 49	Mon. 414-30----- Mon. 414-32-----	47.32 28.58
Mon. 414-1-----	45 24 08.20 70 37 19.88	205 54 30 32 37 33	Mon. 414----- Mon. 414-2-----	30.59 103.24	Mon. 414-32-----	45 23 13.90 70 38 14.54	117 58 50 318 41 47	Mon. 414-31----- Mon. 414-33-----	28.58 47.77
Mon. 414-2-----	45 24 05.39 70 37 22.44	212 37 31 43 53 01	Mon. 414-1----- Mon. 414-3-----	103.24 86.64	Mon. 414-33-----	45 23 12.74 70 38 13.09	138 41 48 332 13 06	Mon. 414-32----- Mon. 414-34-----	47.77 103.44
Mon. 414-3-----	45 24 03.36 70 37 25.20	223 52 59 15 59 39	Mon. 414-2----- Mon. 414-4-----	86.64 72.27	Mon. 414-34-----	45 23 09.77 70 38 10.87	152 13 08 316 04 20	Mon. 414-33----- Mon. 414-35-----	103.44 98.51
Mon. 414-4-----	45 24 01.11 70 37 26.12	195 59 38 76 08 08	Mon. 414-3----- Mon. 414-5-----	72.27 78.87	Mon. 414-35-----	45 23 07.48 70 38 07.73	136 04 22 358 50 52	Mon. 414-34----- Mon. 414-36-----	98.51 53.99
Mon. 414-5-----	45 24 00.50 70 37 29.64	256 08 05 76 40 55	Mon. 414-4----- Mon. 414-6-----	78.87 60.87	Mon. 414-36-----	45 23 05.73 70 38 07.68	178 50 52 23 16 07	Mon. 414-35----- Mon. 414-37-----	53.99 44.07
Mon. 414-6-----	45 24 00.05 70 37 32.36	256 40 53 72 25 28	Mon. 414-5----- Mon. 414-7-----	60.87 101.51	Mon. 414-37-----	45 23 04.42 70 38 08.48	203 16 07 333 08 06	Mon. 414-36----- Mon. 414-38-----	44.07 82.80
Mon. 414-7-----	45 23 59.05 70 37 36.81	252 25 25 98 21 30	Mon. 414-6----- Mon. 414-8-----	101.51 168.63	Mon. 414-38-----	45 23 02.02 70 38 06.76	153 08 07 24 58 28	Mon. 414-37----- Mon. 414-39-----	82.80 47.11

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 414-39.....	45 23 00.64 70 38 07.67	204 58 27 92 42 27	Mon. 414-38..... Mon. 414-40.....	47.11 46.71	Mon. 417-4.....	45 22 50.40 70 39 39.64	344 29 53 158 16 25	Mon. 417-3..... Mon. 417-5.....	80.45 88.31
Mon. 414-40.....	45 23 00.71 70 38 09.82	272 42 26 40 00 33	Mon. 414-39..... Mon. 414 41.....	46.71 43.87	Mon. 417-5.....	45 22 53.06 70 39 41.14	338 16 24 167 01 21	Mon. 417-4..... Mon. 417-6.....	88.31 110.00
Mon. 414-41.....	45 22 59.62 70 38 11.11	220 00 32 36 15 35	Mon. 414-40..... Mon. 415.....	43.87 78.53	Mon. 417-6.....	45 22 56.53 70 39 42.27	347 01 20 196 37 50	Mon. 417-5..... Mon. 417-7.....	110.00 62.35
Mon. 415.....	45 22 57.57 70 38 13.25	216 15 34 50 02 17	Mon. 414-41..... Mon. 415-1.....	78.53 43.15	Mon. 417-7.....	45 22 58.46 70 39 41.45	16 37 51 191 46 46	Mon. 417-6..... Mon. 417-8.....	62.35 27.01
Mon. 415-1.....	45 22 56.67 70 38 14.77	230 02 16 68 45 57	Mon. 415..... Mon. 415-2.....	43.15 161.01	Mon. 417-8.....	45 22 59.32 70 39 41.20	11 46 46 175 42 05	Mon. 417-7..... Mon. 417-9.....	27.01 286.48
Mon. 415-2.....	45 22 54.78 70 38 21.66	248 45 52 69 50 49	Mon. 415-1..... Mon. 415-3.....	161.01 119.19	Mon. 417-9.....	45 23 08.57 70 39 42.19	355 42 04 151 51 52	Mon. 417-8..... Mon. 418-1.....	286.48 86.53
Mon. 415-3.....	45 22 53.46 70 38 26.81	249 50 45 73 41 39	Mon. 415-2..... Mon. 415-4.....	119.19 47.68	Mon. 417-10.....	45 23 11.04 70 39 44.06	331 51 51 115 52 49	Mon. 417-9..... Mon. 418.....	86.53 18.70
Mon. 415-4.....	45 22 53.02 70 38 28.91	253 41 38 48 48 33	Mon. 415-3..... Mon. 415-5.....	47.68 57.58	Mon. 418.....	45 23 11.31 70 39 44.84	295 52 49 149 24 19	Mon. 417-10..... Mon. 418-1.....	18.70 13.94
Mon. 415-5.....	45 22 51.79 70 38 30.90	228 48 32 53 18 35	Mon. 415-4..... Mon. 415-6.....	57.58 203.38	Mon. 418-1.....	45 23 11.70 70 39 45.16	329 24 19 105 58 19	Mon. 418..... Mon. 418-2.....	13.94 97.76
Mon. 415-6.....	45 22 47.86 70 38 38.40	233 18 30 59 28 28	Mon. 415-5..... Mon. 415-7.....	203.38 87.26	Mon. 418-2.....	45 23 12.57 70 39 49.48	285 58 16 135 56 34	Mon. 418-1..... Mon. 418-3.....	97.76 58.68
Mon. 415-7.....	45 22 46.42 70 38 41.85	239 28 25 55 29 37	Mon. 415-6..... Mon. 415-8.....	87.26 137.99	Mon. 418-3.....	45 23 13.94 70 39 51.36	315 56 33 135 45 22	Mon. 418-2..... Mon. 418-4.....	58.68 132.97
Mon. 415-8.....	45 22 43.89 70 38 47.08	235 29 33 82 47 01	Mon. 415-7..... Mon. 415-9.....	137.99 38.36	Mon. 418-4.....	45 23 17.02 70 39 55.62	315 45 19 125 14 43	Mon. 418-3..... Mon. 418-5.....	132.97 124.26
Mon. 415-9.....	45 22 43.73 70 38 48.83	262 47 00 63 09 41	Mon. 415-8..... Mon. 416.....	38.36 193.58	Mon. 418-5.....	45 23 19.34 70 40 00.29	305 14 39 122 41 46	Mon. 418-4..... Mon. 418-6.....	124.26 352.82
Mon. 416.....	45 22 40.90 70 38 56.77	243 09 36 61 06 24	Mon. 415-9..... Mon. 416-1.....	193.58 171.08	Mon. 418-6.....	45 23 25.52 70 40 13.94	302 41 36 132 48 35	Mon. 418-5..... Mon. 418-7.....	352.82 74.96
Mon. 416-1.....	45 22 38.22 70 39 03.65	241 06 19 88 31 00	Mon. 416..... Mon. 416-2.....	171.08 50.57	Mon. 418-7.....	45 23 27.17 70 40 16.46	312 48 33 127 14 11	Mon. 418-6..... Mon. 418-8.....	74.96 107.69
Mon. 416-2.....	45 22 38.18 70 39 05.97	268 30 58 65 47 00	Mon. 416-1..... Mon. 416-3.....	50.57 60.19	Mon. 418-8.....	45 23 29.28 70 40 20.40	307 14 09 125 23 49	Mon. 418-7..... Mon. 418-9.....	107.69 231.23
Mon. 416-3.....	45 22 37.38 70 39 08.50	245 46 58 122 03 34	Mon. 416-2..... Mon. 416-4.....	60.19 65.32	Mon. 418-9.....	45 23 33.62 70 40 29.07	305 23 43 110 36 48	Mon. 418-8..... Mon. 418-10.....	231.23 95.61
Mon. 416-4.....	45 22 38.50 70 39 11.04	302 03 32 135 19 51	Mon. 416-3..... Mon. 416-5.....	65.32 41.44	Mon. 418-10.....	45 23 34.71 70 40 33.18	290 36 45 122 32 34	Mon. 418-9..... Mon. 418-11.....	95.61 187.65
Mon. 416-5.....	45 22 39.46 70 39 12.38	315 19 50 89 31 12	Mon. 416-4..... Mon. 416-6.....	41.44 98.20	Mon. 418-11.....	45 23 37.98 70 40 40.46	302 32 29 129 10 53	Mon. 418-10..... Mon. 418-12.....	187.65 84.75
Mon. 416-6.....	45 22 39.43 70 39 16.89	269 31 09 102 18 32	Mon. 416-5..... Mon. 416-7.....	98.20 74.51	Mon. 418-12.....	45 23 39.71 70 40 43.48	309 10 51 90 37 43	Mon. 418-11..... Mon. 418-13.....	84.75 76.87
Mon. 416-7.....	45 22 39.95 70 39 20.24	282 18 30 93 58 46	Mon. 416-6..... Mon. 416-8.....	74.51 75.20	Mon. 418-13.....	45 23 39.74 70 40 47.01	270 37 40 103 36 56	Mon. 418-12..... Mon. 418-14.....	76.87 123.51
Mon. 416-8.....	45 22 40.12 70 39 23.69	273 58 44 82 07 52	Mon. 416-7..... Mon. 416-9.....	75.20 91.52	Mon. 418-14.....	45 23 40.68 70 40 52.53	283 36 52 113 05 39	Mon. 418-13..... Mon. 418-15.....	123.51 188.93
Mon. 416-9.....	45 22 39.71 70 39 27.85	262 07 49 93 23 05	Mon. 416-8..... Mon. 416-10.....	91.52 126.18	Mon. 418-15.....	45 23 43.08 70 41 00.52	293 05 33 69 44 43	Mon. 418-14..... Mon. 419.....	188.93 108.61
Mon. 416-10.....	45 22 39.95 70 39 33.64	273 23 01 104 24 13	Mon. 416-9..... Mon. 416-11.....	126.18 116.14	Mon. 419.....	45 23 41.86 70 41 05.20	249 44 39 69 44 27	Mon. 418-15..... Mon. 419-1.....	108.61 50.50
Mon. 416-11.....	45 22 40.89 70 39 38.81	284 24 09 123 51 03	Mon. 416-10..... Mon. 416-12.....	116.14 25.42	Mon. 419-1.....	45 23 41.30 70 41 07.38	249 44 25 44 09 12	Mon. 419..... Mon. 419-2.....	50.50 29.03
Mon. 416-12.....	45 22 41.35 70 39 39.78	303 51 02 108 30 00	Mon. 416-11..... Mon. 416-13.....	25.42 25.37	Mon. 419-2.....	45 23 40.62 70 41 08.31	224 09 11 41 28 03	Mon. 419-1..... Mon. 419-3.....	29.03 183.85
Mon. 416-13.....	45 22 41.61 70 39 40.89	288 29 59 171 41 06	Mon. 416-12..... Mon. 417.....	25.37 24.98	Mon. 419-3.....	45 23 36.16 70 41 13.91	221 27 59 60 20 26	Mon. 419-2..... Mon. 419-4.....	183.85 91.62
Mon. 417.....	45 22 42.41 70 39 41.06	351 41 06 196 46 06	Mon. 416-13..... Mon. 417-1.....	24.98 17.71	Mon. 419-4.....	45 23 34.69 70 41 17.57	240 20 23 97 12 45	Mon. 419-3..... Mon. 419-5.....	91.62 33.62
Mon. 417-1.....	45 22 42.96 70 39 40.82	16 46 06 208 10 08	Mon. 417..... Mon. 417-2.....	17.71 102.42	Mon. 419-5.....	45 23 34.83 70 41 19.10	277 12 44 99 53 51	Mon. 419-4..... Mon. 419-6.....	33.62 191.00
Mon. 417-2.....	45 22 45.88 70 39 38.60	28 10 10 178 58 34	Mon. 417-1..... Mon. 417-3.....	102.42 61.91	Mon. 419-6.....	45 23 35.89 70 41 27.75	279 53 45 67 02 52	Mon. 419-5..... Mon. 419-7.....	191.00 58.40
Mon. 417-3.....	45 22 47.89 70 39 38.65	358 58 34 164 29 54	Mon. 417-2..... Mon. 417-4.....	61.91 80.45	Mon. 419-7.....	45 23 35.16 70 41 30.22	247 02 50 55 06 02	Mon. 419-6..... Mon. 419-8.....	58.40 84.72



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
Mon. 419-8...	45 23 33.59 70 41 33.42	235 06 00 86 58 07	Mon. 419-7----- Mon. 419-9-----	84.72 321.63	Mon. 421-6-----	45 23 54.37 70 43 44.56	300 02 53 132 02 37	Mon. 421-5----- Mon. 421-7-----	227.69 125.00
Mon. 419-9....	45 23 33.04 70 41 48.18	266 57 57 115 24 34	Mon. 419-8----- Mon. 419-10-----	321.63 94.43	Mon. 421-7-----	45 23 57.08 70 43 48.82	312 02 34 164 18 10	Mon. 421-6----- Mon. 421-8-----	125.00 84.35
Mon. 419-10....	45 23 34.35 70 41 52.10	295 24 31 155 41 03	Mon. 419-9----- Mon. 419-11-----	94.43 59.51	Mon. 421-8-----	45 23 59.71 70 43 49.87	344 18 09 147 50 48	Mon. 421-7----- Mon. 421-9-----	84.35 153.89
Mon. 419-11....	45 23 36.10 70 41 53.23	335 41 02 180 39 19	Mon. 419-10----- Mon. 419-12-----	59.51 60.37	Mon. 421-9-----	45 24 03.94 70 43 53.64	327 50 45 160 16 40	Mon. 421-8----- Mon. 421-10-----	153.89 103.23
Mon. 419-12....	45 23 38.06 70 41 53.20	0 39 19 139 34 11	Mon. 419-11----- Mon. 419-13-----	60.37 28.81	Mon. 421-10-----	45 24 07.08 70 43 55.24	340 16 39 187 45 18	Mon. 421-9----- Mon. 421-11-----	103.23 119.19
Mon. 419-13....	45 23 38.77 70 41 54.06	319 34 11 126 02 53	Mon. 419-12----- Mon. 419-14-----	28.81 99.10	Mon. 421-11-----	45 24 10.91 70 43 54.50	7 45 18 202 41 58	Mon. 421-10----- Mon. 421-12-----	119.19 173.29
Mon. 419-14....	45 23 40.66 70 41 57.74	306 02 50 90 24 57	Mon. 419-13----- Mon. 419-15-----	99.10 54.49	Mon. 421-12-----	45 24 16.09 70 43 51.42	22 42 00 130 46 03	Mon. 421-11----- Mon. 421-13-----	173.29 165.40
Mon. 419-15....	45 23 40.67 70 42 00.25	270 24 55 62 30 06	Mon. 419-14----- Mon. 419-16-----	54.49 250.89	Mon. 421-13-----	45 24 19.59 70 43 57.19	310 45 59 116 44 38	Mon. 421-12----- Mon. 421-14-----	165.40 230.21
Mon. 419-16....	45 23 36.92 70 42 10.48	242 29 59 93 23 45	Mon. 419-15----- Mon. 420-----	250.89 30.14	Mon. 421-14-----	45 24 22.94 70 44 06.64	296 44 31 130 09 13	Mon. 421-13----- Mon. 422-----	230.21 140.28
Mon. 420-----	45 23 36.98 70 42 11.86	273 23 44 93 32 48	Mon. 419-16----- Mon. 420-1-----	30.14 24.49	Mon. 422-----	45 24 25.87 70 44 11.57	310 09 10 130 07 50	Mon. 421-14----- Mon. 422-1-----	140.28 68.25
Mon. 420-1-----	45 23 37.03 70 42 12.99	273 32 47 91 52 02	Mon. 420----- Mon. 420-2-----	24.49 92.16	Mon. 422-1-----	45 24 27.30 70 44 13.97	310 07 48 142 31 46	Mon. 422----- Mon. 422-2-----	68.25 197.86
Mon. 420-2-----	45 23 37.12 70 42 17.22	271 51 59 75 49 09	Mon. 420-1----- Mon. 420-3-----	92.16 196.87	Mon. 422-2-----	45 24 32.38 70 44 19.50	322 31 42 128 56 50	Mon. 422-1----- Mon. 422-3-----	197.86 253.80
Mon. 420-3-----	45 23 35.56 70 42 26.00	255 49 03 49 07 47	Mon. 420-2----- Mon. 420-4-----	196.87 74.71	Mon. 422-3-----	45 24 37.55 70 44 28.58	308 56 44 115 00 37	Mon. 422-2----- Mon. 422-4-----	253.80 127.60
Mon. 420-4-----	45 23 33.98 70 42 28.59	229 07 45 5 53 39	Mon. 420-3----- Mon. 420-5-----	74.71 73.18	Mon. 422-4-----	45 24 39.30 70 44 33.90	295 00 33 136 34 59	Mon. 422-3----- Mon. 422-5-----	127.60 158.76
Mon. 420-5-----	45 23 31.62 70 42 28.94	185 53 39 60 53 51	Mon. 420-4----- Mon. 420-6-----	73.18 152.78	Mon. 422-5-----	45 24 43.03 70 44 38.92	316 34 55 180 27 44	Mon. 422-4----- Mon. 422-6-----	158.76 166.36
Mon. 420-6-----	45 23 29.21 70 42 35.08	240 53 47 46 47 00	Mon. 420-5----- Mon. 420-7-----	152.78 71.64	Mon. 422-6-----	45 24 48.42 70 44 38.86	0 27 44 154 50 33	Mon. 422-5----- Mon. 422-7-----	166.36 96.99
Mon. 420-7-----	45 23 27.62 70 42 37.48	226 46 58 80 45 12	Mon. 420-6----- Mon. 420-8-----	71.64 92.16	Mon. 422-7-----	45 24 51.27 70 44 40.75	334 50 32 142 39 32	Mon. 422-6----- Mon. 422-8-----	96.99 85.06
Mon. 420-8-----	45 23 27.14 70 42 41.66	260 45 09 67 07 24	Mon. 420-7----- Mon. 420-9-----	92.16 86.65	Mon. 422-8-----	45 24 53.46 70 44 43.12	322 39 30 151 28 35	Mon. 422-7----- Mon. 422-9-----	85.06 57.84
Mon. 420-9-----	45 23 26.05 70 42 45.33	247 07 21 130 19 30	Mon. 420-8----- Mon. 420-10-----	86.65 126.11	Mon. 422-9-----	45 24 55.10 70 44 44.40	331 28 34 173 30 00	Mon. 422-8----- Mon. 422-10-----	57.84 116.85
Mon. 420-10-----	45 23 28.70 70 42 49.75	310 19 27 130 17 11	Mon. 420-9----- Mon. 420-11-----	126.11 133.35	Mon. 422-10-----	45 24 58.86 70 44 45.00	353 30 00 208 17 05	Mon. 422-9----- Mon. 422-11-----	116.85 162.11
Mon. 420-11-----	45 23 31.49 70 42 54.42	310 17 08 114 27 27	Mon. 420-10----- Mon. 420-12-----	133.35 251.06	Mon. 422-11-----	45 25 03.49 70 44 41.47	28 17 07 183 12 22	Mon. 422-10----- Mon. 422-12-----	162.11 112.27
Mon. 420-12-----	45 23 34.86 70 43 04.93	294 27 20 130 29 02	Mon. 420-11----- Mon. 420-13-----	251.06 175.25	Mon. 422-12-----	45 25 07.12 70 44 41.18	3 12 22 187 48 27	Mon. 422-11----- Mon. 422-13-----	112.27 188.55
Mon. 420-13-----	45 23 38.54 70 43 11.06	310 28 57 122 22 11	Mon. 420-12----- Mon. 420-14-----	175.25 151.86	Mon. 422-13-----	45 25 13.17 70 44 40.00	7 48 28 173 58 33	Mon. 422-12----- Mon. 423-----	188.55 104.42
Mon. 420-14-----	45 23 41.18 70 43 16.95	302 22 06 106 51 01	Mon. 420-13----- Mon. 420-15-----	151.86 92.90	Mon. 423-----	45 25 16.53 70 44 40.51	353 58 33 131 55 46	Mon. 422-13----- Mon. 423-1-----	104.42 71.85
Mon. 420-15-----	45 23 42.05 70 43 21.04	286 50 58 127 39 13	Mon. 420-14----- Mon. 421-----	92.90 0.98	Mon. 423-1-----	45 25 18.09 70 44 42.97	311 55 44 115 45 55	Mon. 423----- Mon. 423-2-----	71.85 193.46
Mon. 421-----	45 23 42.07 70 43 21.08	307 39 13 125 18 42	Mon. 420-15----- Mon. 421-1-----	0.98 70.90	Mon. 423-2-----	45 25 20.81 70 44 50.98	295 45 49 104 31 06	Mon. 423-1----- Mon. 423-3-----	193.46 180.90
Mon. 421-1-----	45 23 43.40 70 43 23.74	305 18 40 108 35 20	Mon. 421----- Mon. 421-2-----	70.90 95.97	Mon. 423-3-----	45 25 22.28 70 44 59.04	284 31 00 127 44 10	Mon. 423-2----- Mon. 423-4-----	180.90 85.09
Mon. 421-2-----	45 23 44.39 70 43 27.92	288 35 17 130 02 57	Mon. 421-1----- Mon. 421-3-----	95.97 57.46	Mon. 423-4-----	45 25 23.97 70 45 02.13	307 44 08 138 17 31	Mon. 423-3----- Mon. 423-5-----	85.09 73.34
Mon. 421-3-----	45 23 45.59 70 43 29.94	310 02 56 151 34 20	Mon. 421-2----- Mon. 421-4-----	57.46 120.11	Mon. 423-5-----	45 25 25.74 70 45 04.38	318 17 29 163 37 19	Mon. 423-4----- Mon. 423-6-----	73.34 125.27
Mon. 421-4-----	45 23 49.01 70 43 32.57	331 34 18 129 02 22	Mon. 421-3----- Mon. 421-5-----	120.11 81.91	Mon. 423-6-----	45 25 29.64 70 45 06.00	343 37 18 166 43 58	Mon. 423-5----- Mon. 423-7-----	125.27 164.57
Mon. 421-5-----	45 23 50.68 70 43 35.50	309 02 20 120 02 59	Mon. 421-4----- Mon. 421-6-----	81.91 227.69	Mon. 423-7-----	45 25 34.82 70 45 07.74	346 43 57 141 01 57	Mon. 423-6----- Mon. 423-8-----	164.57 95.09

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 423-8-----	45 25 37.22 70 45 10.49	321 01 55 129 53 08	Mon. 423-7----- Mon. 423-9-----	95.09 132.99	Mon. 425-8-----	45 25 36.95 70 47 26.08	271 24 41 128 20 35	Mon. 425-7----- Mon. 425-9-----	85.34 46.90
Mon. 423-9-----	45 25 39.98 70 45 15.18	309 53 05 133 36 13	Mon. 423-8----- Mon. 423-10-----	132.99 101.81	Mon. 425-9-----	45 25 37.89 70 47 27.77	308 20 34 141 28 42	Mon. 425-8----- Mon. 425-10-----	46.90 142.07
Mon. 423-10-----	45 25 42.26 70 45 18.58	313 36 10 103 27 18	Mon. 423-9----- Mon. 423-11-----	101.81 66.64	Mon. 425-10-----	45 25 41.49 70 47 31.84	321 28 39 106 19 40	Mon. 425-9----- Mon. 425-11-----	142.07 62.10
Mon. 423-11-----	45 25 42.76 70 45 21.56	283 27 16 83 27 24	Mon. 423-10----- Mon. 423-12-----	66.64 172.93	Mon. 425-11-----	45 25 42.06 70 47 34.58	286 19 38 100 01 07	Mon. 425-10----- Mon. 425-12-----	62.10 37.30
Mon. 423-12-----	45 25 42.12 70 45 29.46	263 27 18 69 40 26	Mon. 423-11----- Mon. 423-13-----	172.93 73.66	Mon. 425-12-----	45 25 42.27 70 47 36.27	280 01 06 93 10 27	Mon. 425-11----- Mon. 425-13-----	37.30 78.31
Mon. 423-13-----	45 25 41.29 70 45 32.64	249 40 24 52 39 33	Mon. 423-12----- Mon. 423-14-----	73.66 165.48	Mon. 425-13-----	45 25 42.41 70 47 39.86	273 10 24 74 51 03	Mon. 425-12----- Mon. 425-14-----	78.31 127.34
Mon. 423-14-----	45 25 38.04 70 45 38.69	232 39 28 69 49 06	Mon. 423-13----- Mon. 423-15-----	165.48 121.92	Mon. 425-14-----	45 25 41.33 70 47 45.52	254 50 59 49 23 50	Mon. 425-13----- Mon. 425-15-----	127.34 207.31
Mon. 423-15-----	45 25 36.68 70 45 43.95	249 49 03 65 27 20	Mon. 423-14----- Mon. 423-16-----	121.92 196.41	Mon. 425-15-----	45 25 36.96 70 47 52.76	229 23 45 55 33 53	Mon. 425-14----- Mon. 425-16-----	207.31 65.57
Mon. 423-16-----	45 25 34.03 70 45 52.17	245 27 14 73 31 21	Mon. 423-15----- Mon. 423-17-----	196.41 39.27	Mon. 425-16-----	45 25 35.76 70 47 55.24	235 33 51 27 13 55	Mon. 425-15----- Mon. 425-17-----	65.57 89.16
Mon. 423-17-----	45 25 33.67 70 45 53.90	253 31 19 117 24 56	Mon. 423-16----- Mon. 423-18-----	39.27 68.62	Mon. 425-17-----	45 25 33.19 70 47 57.12	207 13 54 355 36 52	Mon. 425-16----- Mon. 425-18-----	89.16 183.89
Mon. 423-18-----	45 25 34.70 70 45 56.70	297 24 55 143 01 21	Mon. 423-17----- Mon. 424-----	68.62 53.00	Mon. 425-18-----	45 25 27.25 70 47 56.48	175 36 52 32 09 30	Mon. 425-17----- Mon. 425-19-----	183.89 178.12
Mon. 424-----	45 25 36.07 70 45 58.17	323 01 20 142 57 31	Mon. 423-18----- Mon. 424-1-----	53.00 176.67	Mon. 425-19-----	45 25 22.36 70 48 00.84	212 09 27 23 45 15	Mon. 425-18----- Mon. 425-20-----	178.12 131.82
Mon. 424-1-----	45 25 40.48 70 46 02.90	322 57 28 136 12 12	Mon. 424----- Mon. 424-2-----	176.67 72.24	Mon. 425-20-----	45 25 18.46 70 48 03.28	203 45 13 33 45 51	Mon. 425-19----- Mon. 425-21-----	131.82 127.53
Mon. 424-2-----	45 25 42.17 70 46 05.20	316 12 10 113 56 29	Mon. 424-1----- Mon. 424-3-----	72.24 58.09	Mon. 425-21-----	45 25 15.02 70 48 06.54	213 45 49 17 52 17	Mon. 425-20----- Mon. 425-22-----	127.53 207.13
Mon. 424-3-----	45 25 42.93 70 46 07.64	293 56 27 90 58 27	Mon. 424-2----- Mon. 424-4-----	58.09 102.34	Mon. 425-22-----	45 25 08.64 70 48 09.46	197 52 15 17 16 33	Mon. 425-21----- Mon. 425-23-----	207.13 120.79
Mon. 424-4-----	45 25 42.99 70 46 12.35	270 58 24 96 18 23	Mon. 424-3----- Mon. 424-5-----	102.34 332.91	Mon. 425-23-----	45 25 04.90 70 48 11.11	197 16 32 56 47 02	Mon. 425-22----- Mon. 426-----	120.79 30.89
Mon. 424-5-----	45 25 44.17 70 46 27.57	276 18 12 115 33 13	Mon. 424-4----- Mon. 424-6-----	332.91 280.33	Mon. 426-----	45 25 04.35 70 48 12.30	236 47 01 56 36 55	Mon. 425-23----- Mon. 426-1-----	30.89 44.16
Mon. 424-6-----	45 25 48.09 70 46 39.21	295 33 05 106 46 16	Mon. 424-5----- Mon. 424-7-----	280.33 45.14	Mon. 426-1-----	45 25 03.56 70 48 14.00	236 36 54 74 50 31	Mon. 426----- Mon. 426-2-----	44.16 163.54
Mon. 424-7-----	45 25 48.51 70 46 41.19	286 46 15 94 31 56	Mon. 424-6----- Mon. 424-8-----	45.14 82.86	Mon. 426-2-----	45 25 02.18 70 48 21.26	254 50 26 67 45 25	Mon. 426-1----- Mon. 426-3-----	163.54 207.39
Mon. 424-8-----	45 25 48.72 70 46 44.99	274 31 53 90 55 20	Mon. 424-7----- Mon. 424-9-----	82.86 74.65	Mon. 426-3-----	45 24 59.64 70 48 30.08	247 45 19 87 36 00	Mon. 426-2----- Mon. 426-4-----	207.39 122.73
Mon. 424-9-----	45 25 48.76 70 46 48.43	270 55 18 116 32 45	Mon. 424-8----- Mon. 424-10-----	74.65 51.19	Mon. 426-4-----	45 24 59.47 70 48 35.72	267 35 56 79 17 47	Mon. 426-3----- Mon. 426-5-----	122.73 158.36
Mon. 424-10-----	45 25 49.50 70 46 50.54	296 32 43 124 23 23	Mon. 424-9----- Mon. 424-11-----	51.19 38.92	Mon. 426-5-----	45 24 58.52 70 48 42.88	259 17 42 16 11 46	Mon. 426-4----- Mon. 426-6-----	158.36 62.43
Mon. 424-11-----	45 25 50.22 70 46 52.01	304 23 21 138 12 50	Mon. 424-10----- Mon. 425-----	38.92 105.52	Mon. 426-6-----	45 24 56.58 70 48 43.68	196 11 45 12 55 40	Mon. 426-5----- Mon. 426-7-----	62.43 112.07
Mon. 425-----	45 25 52.76 70 46 55.25	318 12 48 43 21 39	Mon. 424-11----- Mon. 425-1-----	105.52 85.26	Mon. 426-7-----	45 24 53.04 70 48 44.83	192 55 39 4 14 19	Mon. 426-6----- Mon. 426-8-----	112.07 189.73
Mon. 425-1-----	45 25 50.76 70 46 57.94	223 21 37 32 19 18	Mon. 425----- Mon. 425-2-----	85.26 104.11	Mon. 426-8-----	45 24 46.91 70 48 45.48	184 14 19 21 39 21	Mon. 426-7----- Mon. 426-9-----	189.73 81.92
Mon. 425-2-----	45 25 47.91 70 47 00.50	212 19 16 37 32 01	Mon. 425-1----- Mon. 425-3-----	104.11 139.95	Mon. 426-9-----	45 24 44.44 70 48 46.87	201 39 20 17 26 40	Mon. 426-8----- Mon. 426-10-----	81.92 98.37
Mon. 425-3-----	45 25 44.31 70 47 04.42	217 31 58 36 04 58	Mon. 425-2----- Mon. 425-4-----	139.95 63.33	Mon. 426-10-----	45 24 41.41 70 48 48.22	197 26 39 55 47 44	Mon. 426-9----- Mon. 426-11-----	98.37 42.03
Mon. 425-4-----	45 25 42.65 70 47 06.14	216 04 57 42 18 43	Mon. 425-3----- Mon. 425-5-----	63.33 149.52	Mon. 426-11-----	45 24 40.64 70 48 49.82	235 47 43 35 01 13	Mon. 426-10----- Mon. 426-12-----	42.03 70.96
Mon. 425-5-----	45 25 39.07 70 47 10.77	222 18 40 53 22 49	Mon. 425-4----- Mon. 425-6-----	149.52 179.47	Mon. 426-12-----	45 24 38.76 70 48 51.70	215 01 12 31 18 50	Mon. 426-11----- Mon. 426-13-----	70.96 141.00
Mon. 425-6-----	45 25 35.60 70 47 17.40	233 22 44 110 52 13	Mon. 425-5----- Mon. 425-7-----	179.47 110.62	Mon. 426-13-----	45 24 34.86 70 48 55.07	211 18 48 56 18 46	Mon. 426-12----- Mon. 426-14-----	141.00 65.17
Mon. 425-7-----	45 25 36.88 70 47 22.15	290 52 10 91 24 44	Mon. 425-6----- Mon. 425-8-----	110.62 85.34	Mon. 426-14-----	45 24 33.69 70 48 57.56	236 18 44 38 06 34	Mon. 426-13----- Mon. 426-15-----	65.17 82.22

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 426-15.....	45 24 31.50 70 48 59.89	218 06 32 56 25 22	Mon. 426-14..... Mon. 426-16.....	82.22 95.62	Mon. 428-7.....	45 23 18.71 70 48 55.07	141 49 32 315 46 16	Mon. 428-6 Mon. 428-8.....	226.29 106.08
Mon. 426-16.....	45 24 29.88 70 49 03.56	236 25 19 18 55 21	Mon. 426-15..... Mon. 426-17.....	95.62 105.07	Mon. 428-8.....	45 23 16.25 70 48 51.67	135 46 18 338 03 36	Mon. 428-7..... Mon. 428-9.....	106.08 78.10
Mon. 426-17.....	45 24 26.66 70 49 05.12	198 55 20 19 47 20	Mon. 426-16..... Mon. 426-18.....	105.07 104.76	Mon. 428-9.....	45 23 13.90 70 48 50.32	158 03 37 352 28 17	Mon. 428-8..... Mon. 428-10.....	78.10 86.95
Mon. 426-18.....	45 24 23.47 70 49 06.76	199 47 19 23 09 57	Mon. 426-17..... Mon. 426-19.....	104.76 155.01	Mon. 428-10.....	45 23 11.11 70 48 49.80	172 28 17 332 43 43	Mon. 428-9..... Mon. 428-11.....	86.95 50.35
Mon. 426-19.....	45 24 18.85 70 49 09.56	203 09 55 20 52 10	Mon. 426-18..... Mon. 426-20.....	155.01 26.80	Mon. 428-11.....	45 23 09.66 70 48 48.74	152 43 44 355 05 55	Mon. 428-10..... Mon. 429.....	50.35 143.19
Mon. 426-20.....	45 24 18.04 70 49 10.00	200 52 10 41 52 10	Mon. 426-19..... Mon. 426-21.....	26.80 148.80	Mon. 429.....	45 23 05.04 70 48 48.18	175 05 56 353 39 53	Mon. 428-11..... Mon. 429-1.....	143.19 71.59
Mon. 426-21.....	45 24 14.45 70 49 14.57	221 52 07 48 47 42	Mon. 426-20..... Mon. 427.....	148.80 124.58	Mon. 429-1.....	45 23 02.73 70 48 47.81	173 39 53 343 18 03	Mon. 429..... Mon. 429-2.....	71.59 65.78
Mon. 427.....	45 24 11.79 70 49 18.88	228 47 38 47 42 33	Mon. 426-21..... Mon. 427-1.....	124.58 124.43	Mon. 429-2.....	45 23 00.69 70 48 46.94	163 18 04 320 40 09	Mon. 429-1..... Mon. 429-3.....	65.78 256.07
Mon. 427-1.....	45 24 09.08 70 49 23.11	227 42 30 42 29 32	Mon. 427..... Mon. 427-2.....	124.43 241.65	Mon. 429-3.....	45 22 54.28 70 48 39.48	140 40 14 354 05 24	Mon. 429-2..... Mon. 429-4.....	256.07 51.09
Mon. 427-2.....	45 24 03.31 70 49 30.61	222 29 27 59 25 35	Mon. 427-1..... Mon. 427-3.....	241.65 46.05	Mon. 429-4.....	45 22 52.63 70 48 39.24	174 05 24 340 26 12	Mon. 429-3..... Mon. 429-5.....	51.09 144.40
Mon. 427-3.....	45 24 02.55 70 49 32.44	239 25 34 51 33 29	Mon. 427-2..... Mon. 427-4.....	46.05 64.07	Mon. 429-5.....	45 22 48.22 70 48 37.02	160 26 14 315 19 04	Mon. 429-4..... Mon. 429-6.....	144.40 194.58
Mon. 427-4.....	45 24 01.26 70 49 34.74	231 33 27 353 00 52	Mon. 427-3..... Mon. 427-5.....	64.07 97.77	Mon. 429-6.....	45 22 43.74 70 48 30.73	135 19 08 315 57 53	Mon. 429-5..... Mon. 429-7.....	194.58 34.57
Mon. 427-5.....	45 23 58.12 70 49 34.20	173 00 52 14 16 52	Mon. 427-4..... Mon. 427-6.....	97.77 116.30	Mon. 429-7.....	45 22 42.94 70 48 29.63	135 57 54 328 12 44	Mon. 429-6..... Mon. 429-8.....	34.57 137.56
Mon. 427-6.....	45 23 54.46 70 49 35.51	194 16 51 345 40 30	Mon. 427-5..... Mon. 427-7.....	116.30 16.18	Mon. 429-8.....	45 22 39.15 70 48 26.30	148 12 47 343 48 36	Mon. 429-7..... Mon. 430.....	137.56 61.80
Mon. 427-7.....	45 23 53.96 70 49 35.33	165 40 30 315 54 59	Mon. 427-6..... Mon. 427-8.....	16.18 103.79	Mon. 430.....	45 22 37.23 70 48 25.51	163 48 37 344 30 33	Mon. 429-8..... Mon. 430-1.....	61.80 278.45
Mon. 427-8.....	45 23 51.54 70 49 32.01	135 55 01 332 32 33	Mon. 427-7..... Mon. 427-9.....	103.79 116.00	Mon. 430-1.....	45 22 28.54 70 48 22.09	164 30 35 1 51 04	Mon. 430..... Mon. 430-2.....	278.45 40.93
Mon. 427-9.....	45 23 48.21 70 49 29.55	152 32 35 0 16 43	Mon. 427-8..... Mon. 427-10.....	116.00 184.68	Mon. 430-2.....	45 22 27.21 70 48 22.15	181 51 04 340 50 00	Mon. 430-1..... Mon. 430-3.....	40.93 181.51
Mon. 427-10.....	45 23 42.22 70 49 29.59	180 16 43 12 28 08	Mon. 427-9..... Mon. 427-11.....	184.68 105.89	Mon. 430-3.....	45 22 21.66 70 48 19.41	160 50 02 1 32 36	Mon. 430-2..... Mon. 430-4.....	181.51 150.97
Mon. 427-11.....	45 23 38.88 70 49 30.64	192 28 07 21 26 39	Mon. 427-10..... Mon. 427-12.....	105.89 55.17	Mon. 430-4.....	45 22 16.77 70 48 19.60	181 32 36 328 51 45	Mon. 430-3..... Mon. 430-5.....	150.97 132.56
Mon. 427-12.....	45 23 37.21 70 49 31.57	201 26 38 27 30 09	Mon. 427-11..... Mon. 427-13.....	55.17 63.77	Mon. 430-5.....	45 22 13.10 70 48 16.45	148 51 47 355 19 11	Mon. 430-4..... Mon. 430-6.....	132.56 97.44
Mon. 427-13.....	45 23 35.38 70 49 32.92	207 30 08 312 21 15	Mon. 427-12..... Mon. 427-14.....	63.77 107.69	Mon. 430-6.....	45 22 09.95 70 48 16.08	175 19 11 341 44 55	Mon. 430-5..... Mon. 430-7.....	97.44 127.80
Mon. 427-14.....	45 23 33.03 70 49 29.26	132 21 18 323 17 07	Mon. 427-13..... Mon. 427-15.....	107.69 51.32	Mon. 430-7.....	45 22 06.02 70 48 14.24	161 44 56 328 35 00	Mon. 430-6..... Mon. 430-8.....	127.80 94.74
Mon. 427-15.....	45 23 31.70 70 49 27.85	143 17 08 16 20 27	Mon. 427-14..... Mon. 427-16.....	51.32 55.51	Mon. 430-8.....	45 22 03.40 70 48 11.98	148 35 02 355 09 36	Mon. 430-7..... Mon. 430-9.....	94.74 205.45
Mon. 427-16.....	45 23 29.97 70 49 28.57	196 20 27 352 48 38	Mon. 427-15..... Mon. 428.....	55.51 12.82	Mon. 430-9.....	45 21 56.77 70 48 11.18	175 09 37 21 11 23	Mon. 430-8..... Mon. 430-10.....	205.45 51.80
Mon. 428.....	45 23 29.56 70 49 28.50	172 48 38 352 57 44	Mon. 427-16..... Mon. 428-1.....	12.82 48.69	Mon. 430-10.....	45 21 55.20 70 48 12.04	201 11 22 26 05 44	Mon. 430-9..... Mon. 430-11.....	51.80 26.84
Mon. 428-1.....	45 23 28.00 70 49 28.22	172 57 44 310 00 53	Mon. 428..... Mon. 428-2.....	48.69 43.10	Mon. 430-11.....	45 21 54.42 70 48 12.58	206 05 44 66 26 12	Mon. 430-10..... Mon. 431.....	26.84 2.23
Mon. 428-2.....	45 23 27.10 70 49 26.70	130 00 54 291 20 42	Mon. 428-1..... Mon. 428-3.....	43.10 86.12	Mon. 431.....	45 21 54.39 70 48 12.68	246 26 12 67 24 30	Mon. 430-11..... Mon. 431-1.....	2.23 218.17
Mon. 428-3.....	45 23 26.08 70 49 23.02	111 20 45 265 18 29	Mon. 428-2..... Mon. 428-4.....	86.12 98.36	Mon. 431-1.....	45 21 51.68 70 48 21.93	247 24 23 71 41 33	Mon. 431..... Mon. 431-2.....	218.17 94.16
Mon. 428-4.....	45 23 26.34 70 49 18.51	85 18 32 274 07 22	Mon. 428-3..... Mon. 428-5.....	98.36 309.14	Mon. 431-2.....	45 21 50.72 70 48 26.04	251 41 30 53 33 13	Mon. 431-1..... Mon. 431-3.....	94.16 174.10
Mon. 428-5.....	45 23 25.62 70 49 04.34	94 07 32 299 52 47	Mon. 428-4..... Mon. 428-6.....	309.14 71.24	Mon. 431-3.....	45 21 47.37 70 48 32.48	233 33 08 4 01 04	Mon. 431-2..... Mon. 431-4.....	174.10 80.20
Mon. 428-6.....	45 23 24.47 70 49 01.50	119 52 49 321 49 27	Mon. 428-5..... Mon. 428-7.....	71.24 226.29	Mon. 431-4.....	45 21 44.78 70 48 32.73	184 01 04 353 40 37	Mon. 431-3..... Mon. 431-5.....	80.20 52.06



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 431-5-----	45 21 43.10 70 48 32.47	173 40 37 20 14 50	Mon. 431-4----- Mon. 431-6-----	52.06 105.62	Mon. 434-5-----	45 20 42.62 70 49 02.86	221 32 19 42 26 23	Mon. 434-4----- Mon. 434-6-----	127.10 50.69
Mon. 431-6-----	45 21 39.89 70 48 34.15	200 14 49 22 56 22	Mon. 431-5----- Mon. 431-7-----	105.62 121.63	Mon. 434-6-----	45 20 41.41 70 49 04.44	222 26 22 27 13 51	Mon. 434-5----- Mon. 434-7-----	50.69 58.45
Mon. 431-7-----	45 21 36.26 70 48 36.33	202 56 21 6 19 29	Mon. 431-6----- Mon. 432-----	121.63 142.08	Mon. 434-7-----	45 20 39.72 70 49 05.66	207 13 50 31 51 49	Mon. 434-6----- Mon. 434-8-----	58.45 20.55
Mon. 432-----	45 21 31.69 70 48 37.05	186 19 29 6 14 02	Mon. 431-7----- Mon. 432-1-----	142.08 83.18	Mon. 434-8-----	45 20 39.16 70 49 06.16	211 51 49 2 59 23	Mon. 434-7----- Mon. 434-9-----	20.55 34.98
Mon. 432-1-----	45 21 29.01 70 48 37.46	186 14 02 49 18 02	Mon. 432----- Mon. 432-2-----	83.18 64.80	Mon. 434-9-----	45 20 38.03 70 49 06.24	182 59 23 359 44 47	Mon. 434-8----- Mon. 434-10-----	34.98 16.62
Mon. 432-2-----	45 21 27.64 70 48 39.72	229 18 00 58 53 48	Mon. 432-1----- Mon. 432-3-----	64.80 76.33	Mon. 434-10-----	45 20 37.49 70 49 06.24	179 44 47 29 09 19	Mon. 434-9----- Mon. 434-11-----	16.62 287.33
Mon. 432-3-----	45 21 26.37 70 48 42.72	238 53 46 80 45 16	Mon. 432-2----- Mon. 432-4-----	76.33 86.04	Mon. 434-11-----	45 20 29.36 70 49 12.67	209 09 14 10 07 43	Mon. 434-10----- Mon. 434-12-----	287.33 86.06
Mon. 432-4-----	45 21 25.92 70 48 46.62	260 45 13 100 19 16	Mon. 432-3----- Mon. 432-5-----	86.04 96.07	Mon. 434-12-----	45 20 26.62 70 49 13.37	190 07 43 8 29 12	Mon. 434-11----- Mon. 434-13-----	86.06 49.85
Mon. 432-5-----	45 21 26.48 70 48 50.97	280 19 13 111 30 43	Mon. 432-4----- Mon. 432-6-----	96.07 19.32	Mon. 434-13-----	45 20 25.02 70 49 13.70	188 29 12 345 01 03	Mon. 434-12----- Mon. 435-----	49.85 38.07
Mon. 432-6-----	45 21 26.70 70 48 51.79	291 30 42 38 30 28	Mon. 432-5----- Mon. 432-7-----	19.32 23.84	Mon. 435-----	45 20 23.83 70 49 13.25	165 01 03 339 55 34	Mon. 434-13----- Mon. 435-1-----	38.07 90.08
Mon. 432-7-----	45 21 26.10 70 48 52.47	218 30 28 34 09 46	Mon. 432-6----- Mon. 432-8-----	23.84 65.15	Mon. 435-1-----	45 20 21.09 70 49 11.83	159 55 35 310 16 11	Mon. 435----- Mon. 435-2-----	90.08 68.27
Mon. 432-8-----	45 21 24.36 70 48 54.16	214 09 45 344 38 51	Mon. 432-7----- Mon. 432-9-----	65.15 57.59	Mon. 435-2-----	45 20 19.66 70 49 09.44	130 16 13 328 57 36	Mon. 435-1----- Mon. 435-3-----	68.27 106.38
Mon. 432-9-----	45 21 22.56 70 48 53.46	164 38 52 349 07 45	Mon. 432-8----- Mon. 432-10-----	57.59 97.61	Mon. 435-3-----	45 20 16.71 70 49 06.92	148 57 38 33 50 39	Mon. 435-2----- Mon. 435-4-----	106.38 42.43
Mon. 432-10-----	45 21 19.45 70 48 52.61	169 07 46 356 39 32	Mon. 432-9----- Mon. 432-11-----	97.61 41.02	Mon. 435-4-----	45 20 15.57 70 49 08.01	213 50 38 13 50 32	Mon. 435-3----- Mon. 435-5-----	42.43 242.61
Mon. 432-11-----	45 21 18.12 70 48 52.50	176 39 32 332 24 25	Mon. 432-10----- Mon. 432-12-----	41.02 120.16	Mon. 435-5-----	45 20 07.94 70 49 10.67	193 50 30 324 32 30	Mon. 435-4----- Mon. 435-6-----	242.61 46.11
Mon. 432-12-----	45 21 14.68 70 48 49.94	152 24 27 321 37 57	Mon. 432-11----- Mon. 432-13-----	120.16 137.61	Mon. 435-6-----	45 20 06.72 70 49 09.44	144 32 31 346 24 22	Mon. 435-5----- Mon. 435-7-----	46.11 88.72
Mon. 432-13-----	45 21 11.18 70 48 46.02	141 37 59 335 58 45	Mon. 432-12----- Mon. 432-14-----	137.61 109.04	Mon. 435-7-----	45 20 03.93 70 49 08.48	166 24 23 351 41 31	Mon. 435-6----- Mon. 435-8-----	88.72 195.82
Mon. 432-14-----	45 21 07.95 70 48 43.98	155 58 46 291 22 43	Mon. 432-13----- Mon. 433-----	109.04 76.91	Mon. 435-8-----	45 19 57.65 70 49 07.19	171 41 32 310 25 28	Mon. 435-7----- Mon. 435-9-----	195.82 127.10
Mon. 433-----	45 21 07.05 70 48 40.69	111 22 45 291 21 54	Mon. 432-14----- Mon. 433-1-----	76.91 108.55	Mon. 435-9-----	45 19 54.98 70 49 02.74	130 25 31 343 46 04	Mon. 435-8----- Mon. 436-----	127.10 5.54
Mon. 433-1-----	45 21 05.76 70 48 36.04	111 21 57 17 35 00	Mon. 433----- Mon. 433-2-----	108.55 55.54	Mon. 436-----	45 19 54.81 70 49 02.67	163 46 04 343 37 43	Mon. 435-9----- Mon. 436-1-----	5.54 119.21
Mon. 433-2-----	45 21 04.05 70 48 36.82	197 34 59 4 57 20	Mon. 433-1----- Mon. 433-3-----	55.54 138.03	Mon. 436-1-----	45 19 51.10 70 49 01.13	163 37 44 290 07 45	Mon. 436----- Mon. 436-2-----	119.21 95.89
Mon. 433-3-----	45 20 59.60 70 48 37.36	184 57 20 13 08 21	Mon. 433-2----- Mon. 433-4-----	138.03 45.67	Mon. 436-2-----	45 19 50.03 70 48 56.99	110 07 48 314 04 34	Mon. 436-1----- Mon. 436-3-----	95.89 84.78
Mon. 433-4-----	45 20 58.16 70 48 37.84	193 08 21 352 37 04	Mon. 433-3----- Mon. 433-5-----	45.67 81.40	Mon. 436-3-----	45 19 48.12 70 48 54.20	134 04 36 348 01 16	Mon. 436-2----- Mon. 436-4-----	84.78 73.69
Mon. 433-5-----	45 20 55.54 70 48 37.36	172 37 04 40 07 22	Mon. 433-4----- Mon. 433-6-----	81.40 29.02	Mon. 436-4-----	45 19 45.79 70 48 53.50	168 01 16 330 00 32	Mon. 436-3----- Mon. 436-5-----	73.69 53.23
Mon. 433-6-----	45 20 54.82 70 48 38.22	220 07 21 46 26 05	Mon. 433-5----- Mon. 433 7-----	29.02 65.42	Mon. 436-5-----	45 19 44.30 70 48 52.27	150 00 33 319 15 22	Mon. 436-4----- Mon. 436-6-----	53.23 123.94
Mon. 433-7-----	45 20 53.36 70 48 40.40	226 26 03 37 18 46	Mon. 433-6----- Mon. 434-----	65.42 177.56	Mon. 436-6-----	45 19 41.25 70 48 48.56	139 15 25 296 24 06	Mon. 436-5----- Mon. 437-----	123.94 33.98
Mon. 434-----	45 20 48.79 70 48 45.34	217 18 43 37 20 38	Mon. 433-7----- Mon. 434-1-----	177.56 47.43	Mon. 436-7-----	45 19 40.76 70 48 47.16	116 24 07 274 08 09	Mon. 436-6----- Mon. 436-8-----	33.98 91.64
Mon. 434-1-----	45 20 47.57 70 48 46.66	217 20 37 70 48 46.66	Mon. 434----- Mon. 434-2-----	47.43 62.24	Mon. 436-8-----	45 19 40.54 70 48 42.96	94 08 12 255 25 14	Mon. 436-7----- Mon. 437-----	91.64 49.62
Mon. 434-2-----	45 20 46.72 70 48 49.26	245 16 47 82 55 23	Mon. 434-1----- Mon. 434-3-----	62.24 179.17	Mon. 437-----	45 19 40.96 70 48 40.76	75 25 16 255 23 59	Mon. 436-8----- Mon. 437-1-----	49.62 177.04
Mon. 434-3-----	45 20 46.01 70 48 57.43	262 55 17 74 37 49	Mon. 434-2----- Mon. 434-4-----	179.17 35.35	Mon. 437-1-----	45 19 42.40 70 48 32.89	75 24 05 315 25 01	Mon. 437----- Mon. 437-2-----	177.04 108.58
Mon. 434-4-----	45 20 45.71 70 48 58.99	254 37 48 41 32 22	Mon. 434-3----- Mon. 434-5-----	35.35 127.10	Mon. 437-2-----	45 19 39.90 70 48 29.39	135 25 04 17 53 02	Mon. 437-1----- Mon. 437-3-----	108.58 49.67

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 437-3	45 19 38.36 70 48 30.09	197 53 02 21 51 03	Mon. 437-2 Mon. 437-4	49.67 59.06	Mon. 439-7	45 18 32.67 70 48 51.03	237 50 41 89 05 04	Mon. 439-6 Mon. 439-8	99.74 32.13
Mon. 437-4	45 19 36.59 70 48 31.10	201 51 02 0 22 08	Mon. 437-3 Mon. 437-5	59.06 194.90	Mon. 439-8	45 18 32.66 70 48 52.51	269 05 03 27 38 59	Mon. 439-7 Mon. 439-9	32.13 103.72
Mon. 437-5	45 19 30.28 70 48 31.16	180 22 08 332 43 34	Mon. 437-4 Mon. 438	194.90 87.45	Mon. 439-9	45 18 29.68 70 48 54.72	207 38 57 327 54 13	Mon. 439-8 Mon. 439-10	103.72 34.88
Mon. 438	45 19 27.76 70 48 29.32	152 43 35 334 13 24	Mon. 437-5 Mon. 438-1	87.45 74.66	Mon. 439-10	45 18 28.72 70 48 53.87	147 54 14 340 41 35	Mon. 439-9 Mon. 439-11	34.88 19.28
Mon. 438-1	45 19 25.58 70 48 27.83	154 13 25 356 26 05	Mon. 438 Mon. 438-2	74.66 80.45	Mon. 439-11	45 18 28.14 70 48 53.58	160 41 35 298 30 21	Mon. 439-10 Mon. 439-12	19.28 113.21
Mon. 438-2	45 19 22.98 70 48 27.60	176 26 05 322 26 00	Mon. 438-1 Mon. 438-3	80.45 44.79	Mon. 439-12	45 18 26.38 70 48 49.01	118 30 24 329 11 15	Mon. 439-11 Mon. 439-13	113.21 18.36
Mon. 438-3	45 19 21.83 70 48 26.34	142 26 01 336 56 20	Mon. 438-2 Mon. 438-4	44.79 128.90	Mon. 439-13	45 18 25.87 70 48 48.58	149 11 16 327 09 35	Mon. 439-12 Mon. 439-14	18.36 110.10
Mon. 438-4	45 19 17.99 70 48 24.02	156 56 22 0 20 41	Mon. 438-3 Mon. 438-5	128.90 41.14	Mon. 439-14	45 18 22.88 70 48 45.84	147 09 37 338 48 48	Mon. 439-13 Mon. 440	110.10 36.71
Mon. 438-5	45 19 16.66 70 48 24.04	180 20 41 18 39 51	Mon. 438-4 Mon. 438-6	41.14 45.10	Mon. 440	45 18 21.77 70 48 45.23	158 48 48 339 03 27	Mon. 439-14 Mon. 440-1	36.71 42.94
Mon. 438-6	45 19 15.27 70 48 24.70	198 29 51 19 39 53	Mon. 438-5 Mon. 438-7	45.10 36.56	Mon. 440-1	45 18 20.47 70 48 44.53	159 03 28 10 15 16	Mon. 440 Mon. 440-2	42.94 58.72
Mon. 438-7	45 19 14.16 70 48 25.26	199 39 52 70 59 53	Mon. 438-6 Mon. 438-8	36.56 23.77	Mon. 440-2	45 18 18.60 70 48 45.01	190 15 16 348 23 39	Mon. 440-1 Mon. 440-3	58.72 148.63
Mon. 438-8	45 19 13.90 70 48 26.30	250 59 52 66 41 42	Mon. 438-7 Mon. 438-9	23.77 22.55	Mon. 440-3	45 18 13.88 70 48 43.63	168 23 40 18 08 43	Mon. 440-2 Mon. 440-4	148.63 91.71
Mon. 438-9	45 19 13.62 70 48 27.25	246 41 41 1 11 06	Mon. 438-8 Mon. 438-10	22.55 98.42	Mon. 440-4	45 18 11.06 70 48 44.94	198 08 42 20 32 41	Mon. 440-3 Mon. 440-5	91.71 117.15
Mon. 438-10	45 19 10.43 70 48 27.34	181 11 06 29 35 27	Mon. 438-9 Mon. 438-11	98.42 36.87	Mon. 440-5	45 18 07.51 70 48 46.83	200 32 40 42 30 42	Mon. 440-4 Mon. 440-6	117.15 46.15
Mon. 438-11	45 19 09.39 70 48 28.18	209 35 27 7 25 18	Mon. 438-10 Mon. 438-12	36.87 57.29	Mon. 440-6	45 18 06.40 70 48 48.26	222 30 41 51 37 56	Mon. 440-5 Mon. 440-7	46.15 70.06
Mon. 438-12	45 19 07.55 70 48 28.52	187 25 18 29 24 21	Mon. 438-11 Mon. 438-13	57.29 57.59	Mon. 440-7	45 18 05.00 70 48 50.78	231 37 54 24 44 51	Mon. 440-6 Mon. 440-8	70.06 107.04
Mon. 438-13	45 19 05.93 70 48 29.81	209 24 20 7 23 53	Mon. 438-12 Mon. 438-14	57.59 184.66	Mon. 440-8	45 18 01.85 70 48 52.84	204 44 50 51 28 27	Mon. 440-7 Mon. 440-9	107.04 187.91
Mon. 438-14	45 19 00.00 70 48 30.91	187 23 52 355 56 45	Mon. 438-13 Mon. 438-15	184.66 120.06	Mon. 440-9	45 17 58.06 70 48 59.59	231 28 22 11 49 49	Mon. 440-8 Mon. 440-10	187.91 52.63
Mon. 438-15	45 18 56.12 70 48 30.52	175 56 45 11 19 11	Mon. 438-14 Mon. 438-16	120.06 96.29	Mon. 440-10	45 17 56.39 70 49 00.08	191 49 48 3 52 07	Mon. 440-9 Mon. 440-11	52.63 52.97
Mon. 438-16	45 18 53.06 70 48 31.38	191 19 10 22 11 33	Mon. 438-15 Mon. 438-17	96.29 137.13	Mon. 440-11	45 17 54.68 70 49 00.25	183 52 07 20 36 23	Mon. 440-10 Mon. 440-12	52.97 29.71
Mon. 438-17	45 18 48.95 70 48 33.76	202 11 31 345 12 17	Mon. 438-16 Mon. 438-18	137.13 104.21	Mon. 440-12	45 17 53.77 70 49 00.73	200 36 23 62 33 59	Mon. 440-11 Mon. 440-13	29.71 61.62
Mon. 438-18	45 18 45.68 70 48 32.54	165 12 18 357 08 14	Mon. 438-17 Mon. 438-19	104.21 51.19	Mon. 440-13	45 17 52.85 70 49 03.24	242 33 57 134 15 01	Mon. 440-12 Mon. 440-14	61.62 49.85
Mon. 438-19	45 18 44.03 70 48 32.42	177 08 14 359 27 05	Mon. 438-18 Mon. 438-20	51.19 36.09	Mon. 440-14	45 17 53.98 70 49 04.88	314 15 00 165 57 47	Mon. 440-13 Mon. 440-15	49.85 42.37
Mon. 438-20	45 18 42.86 70 48 32.41	179 27 05 42 21 57	Mon. 438-19 Mon. 439	36.09 15.24	Mon. 440-15	45 17 55.31 70 49 05.35	345 57 47 95 19 38	Mon. 440-14 Mon. 441	42.37 35.17
Mon. 439	45 18 42.49 70 48 32.88	222 21 57 42 18 48	Mon. 438-20 Mon. 439-1	15.24 28.46	Mon. 441	45 17 55.42 70 49 06.95	275 19 36 95 19 46	Mon. 440-15 Mon. 441-1	35.17 52.11
Mon. 439-1	45 18 41.81 70 48 33.76	222 18 47 78 11 13	Mon. 439 Mon. 439-2	28.46 108.93	Mon. 441-1	45 17 55.58 70 49 09.33	275 19 44 120 18 32	Mon. 441 Mon. 441-2	52.11 58.20
Mon. 439-2	45 18 41.09 70 48 38.65	258 11 10 46 00 46	Mon. 439-1 Mon. 439-3	108.93 61.50	Mon. 441-2	45 17 56.53 70 49 11.64	300 18 30 62 56 38	Mon. 441-1 Mon. 441-3	58.20 96.90
Mon. 439-3	45 18 39.70 70 48 40.68	226 00 45 47 35 16	Mon. 439-2 Mon. 439-4	61.50 62.11	Mon. 441-3	45 17 55.10 70 49 15.60	242 56 35 58 36 58	Mon. 441-2 Mon. 441-4	96.90 49.67
Mon. 439-4	45 18 38.35 70 48 42.79	227 35 14 32 44 10	Mon. 439-3 Mon. 439-5	62.11 76.49	Mon. 441-4	45 17 54.26 70 49 17.55	238 36 57 87 01 28	Mon. 441-3 Mon. 441-5	49.67 68.56
Mon. 439-5	45 18 36.26 70 48 44.68	212 44 09 43 02 20	Mon. 439-4 Mon. 439-6	76.49 78.94	Mon. 441-5	45 17 54.14 70 49 20.69	267 01 26 53 30 59	Mon. 441-4 Mon. 441-6	68.56 51.19
Mon. 439-6	45 18 34.39 70 48 47.16	223 02 18 57 58 44	Mon. 439-5 Mon. 439-7	78.94 99.74	Mon. 441-6	45 17 53.16 70 49 22.58	233 30 58 65 50 13	Mon. 441-5 Mon. 441-7	51.19 35.35

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 441-7-----	45 17 52.69 70 49 24.06	245 50 12 32 14 03	Mon. 441-6----- Mon. 441-8-----	35.35 27.73	Mon. 443-9-----	45 17 28.01 70 49 52.73	79 47 48 302 53 11	Mon. 443-8----- Mon. 443-10-----	83.49 59.11
Mon. 441-8-----	45 17 51.93 70 49 24.74	212 14 03 76 23 16	Mon. 441-7----- Mon. 441-9-----	27.73 34.43	Mon. 443-10-----	45 17 26.97 70 49 50.45	122 53 13 348 05 46	Mon. 443-9----- Mon. 443-11-----	59.11 63.30
Mon. 441-9-----	45 17 51.67 70 49 26.27	256 23 15 131 41 08	Mon. 441-8----- Mon. 441-10-----	34.43 65.21	Mon. 443-11-----	45 17 24.96 70 49 49.86	168 05 46 351 33 13	Mon. 443-10----- Mon. 443-12-----	63.30 47.75
Mon. 441-10-----	45 17 53.07 70 49 28.51	311 41 06 94 38 20	Mon. 441-9----- Mon. 441-11-----	65.21 79.05	Mon. 443-12-----	45 17 23.43 70 49 49.53	171 33 13 355 09 56	Mon. 443-11----- Mon. 443-13-----	47.75 118.66
Mon. 441-11-----	45 17 52.70 70 49 32.10	261 38 17 48 31 07	Mon. 441-10----- Mon. 442-----	79.05 104.52	Mon. 443-13-----	45 17 19.60 70 49 49.07	175 09 56 6 13 57	Mon. 443-12----- Mon. 443-14-----	118.66 206.78
Mon. 442-----	45 17 50.46 70 49 35.69	228 31 04 91 15 36	Mon. 441-11----- Mon. 442-1-----	104.52 74.92	Mon. 443-14-----	45 17 12.94 70 49 50.10	186 13 56 15 53 07	Mon. 443-13----- Mon. 443-15-----	206.78 77.21
Mon. 442-1-----	45 17 48.73 70 49 38.10	224 33 56 67 20 07	Mon. 442----- Mon. 442-2-----	74.92 27.36	Mon. 443-15-----	45 17 10.54 70 49 51.07	195 53 07 20 00 55	Mon. 443-14----- Mon. 444-----	77.21 137.33
Mon. 442-2-----	45 17 48.39 70 49 39.26	247 20 06 94 39 24	Mon. 442-1----- Mon. 442-3-----	27.36 44.40	Mon. 444-----	45 17 06.36 70 49 53.23	200 00 54 12 48 41	Mon. 443-15----- Mon. 444-1-----	137.33 93.06
Mon. 442-3-----	45 17 48.51 70 49 41.29	274 39 23 55 49 48	Mon. 442-2----- Mon. 442-4-----	44.40 85.05	Mon. 444-1-----	45 17 03.42 70 49 54.18	192 48 40 5 55 35	Mon. 444----- Mon. 444-2-----	93.06 263.77
Mon. 442-4-----	45 17 46.96 70 49 44.52	235 49 46 91 15 36	Mon. 442-3----- Mon. 442-5-----	85.05 41.00	Mon. 444-2-----	45 16 54.92 70 49 55.43	185 55 34 5 33 06	Mon. 444-1----- Mon. 444-3-----	263.77 326.52
Mon. 442-5-----	45 17 46.99 70 49 46.40	271 15 35 62 24 50	Mon. 442-4----- Mon. 442-6-----	41.00 44.63	Mon. 444-3-----	45 16 44.39 70 49 56.88	185 33 05 61 36 34	Mon. 444-2----- Mon. 444-4-----	326.52 74.10
Mon. 442-6-----	45 17 46.32 70 49 48.22	242 24 48 36 35 15	Mon. 442-5----- Mon. 442-7-----	44.63 44.67	Mon. 444-4-----	45 16 43.25 70 49 59.87	241 36 32 49 21 38	Mon. 444-3----- Mon. 444-5-----	74.10 112.23
Mon. 442-7-----	45 17 45.16 70 49 49.44	216 35 14 57 32 29	Mon. 442-6----- Mon. 442-8-----	44.67 60.41	Mon. 444-5-----	45 16 40.88 70 50 03.77	229 21 35 51 37 47	Mon. 444-4----- Mon. 444-6-----	112.23 67.91
Mon. 442-8-----	45 17 44.11 70 49 51.78	237 32 27 67 35 18	Mon. 442-7----- Mon. 442-9-----	60.41 19.32	Mon. 444-6-----	45 16 39.52 70 50 06.22	231 37 45 42 05 15	Mon. 444-5----- Mon. 444-7-----	67.91 204.13
Mon. 442-9-----	45 17 43.87 70 49 52.60	247 35 18 61 49 18	Mon. 442-8----- Mon. 442-10-----	19.32 36.69	Mon. 444-7-----	45 16 34.61 70 50 12.49	222 05 11 36 30 15	Mon. 444-6----- Mon. 444-8-----	204.13 29.86
Mon. 442-10-----	45 17 43.31 70 49 54.08	241 49 17 79 51 48	Mon. 442-9----- Mon. 442-11-----	36.69 41.56	Mon. 444-8-----	45 16 33.83 70 50 13.31	216 30 15 2 43 38	Mon. 444-7----- Mon. 444-9-----	29.86 81.85
Mon. 442-11-----	45 17 43.07 70 49 55.96	259 51 47 74 38 46	Mon. 442-10----- Mon. 442-12-----	41.56 89.83	Mon. 444-9-----	45 16 31.18 70 50 13.49	182 43 38 55 59 18	Mon. 444-8----- Mon. 444-10-----	81.85 52.94
Mon. 442-12-----	45 17 42.30 70 49 59.94	254 38 43 88 08 03	Mon. 442-11----- Mon. 442-13-----	89.83 40.28	Mon. 444-10-----	45 16 30.22 70 50 15.50	235 59 16 16 35 28	Mon. 444-9----- Mon. 444-11-----	52.94 143.27
Mon. 442-13-----	45 17 42.26 70 50 01.79	268 08 02 45 02 08	Mon. 442-12----- Mon. 442-14-----	40.28 116.34	Mon. 444-11-----	45 16 25.78 70 50 17.38	196 35 27 8 04 49	Mon. 444-10----- Mon. 444-12-----	143.27 53.20
Mon. 442-14-----	45 17 39.59 70 50 05.56	225 02 05 59 35 02	Mon. 442-13----- Mon. 442-15-----	116.34 63.03	Mon. 444-12-----	45 16 24.07 70 50 17.72	188 04 49 4 48 03	Mon. 444-11----- Mon. 444-13-----	53.20 75.96
Mon. 442-15-----	45 17 38.56 70 50 08.06	239 35 00 91 51 45	Mon. 442-14----- Mon. 442-16-----	63.03 36.69	Mon. 444-13-----	45 16 21.62 70 50 18.01	184 48 03 14 41 01	Mon. 444-12----- Mon. 444-14-----	75.96 157.69
Mon. 442-16-----	45 17 38.60 70 50 09.74	271 51 44 24 20 29	Mon. 442-15----- Mon. 443-----	36.69 16.48	Mon. 444-14-----	45 16 16.68 70 50 19.85	194 41 00 21 20 39	Mon. 444-13----- Mon. 444-15-----	157.69 197.58
Mon. 443-----	45 17 38.11 70 50 10.05	204 20 29 25 27 23	Mon. 442-16----- Mon. 443-1-----	16.48 28.88	Mon. 444-15-----	45 16 10.72 70 50 23.14	201 20 36 5 28 49	Mon. 444-14----- Mon. 444-16-----	197.58 59.12
Mon. 443-1-----	45 17 37.27 70 50 10.62	205 27 23 319 28 58	Mon. 443----- Mon. 443-2-----	28.88 53.88	Mon. 444-16-----	45 16 08.81 70 50 23.40	185 28 49 37 36 47	Mon. 444-15----- Mon. 445-----	59.12 75.16
Mon. 443-2-----	45 17 35.94 70 50 09.02	139 28 59 304 11 42	Mon. 443-1----- Mon. 443-3-----	53.88 50.23	Mon. 445-----	45 16 06.88 70 50 25.51	217 36 45 37 40 15	Mon. 444-16----- Mon. 445-1-----	75.16 126.71
Mon. 443-3-----	45 17 35.03 70 50 07.11	124 11 43 324 40 38	Mon. 443-2----- Mon. 443-4-----	50.23 55.39	Mon. 445-1-----	45 16 03.63 70 50 29.06	217 40 13 20 10 58	Mon. 445----- Mon. 445-2-----	126.71 40.17
Mon. 443-4-----	45 17 33.56 70 50 05.64	144 40 39 315 02 06	Mon. 443-3----- Mon. 443-5-----	55.39 56.62	Mon. 445-2-----	45 16 02.41 70 50 29.70	200 10 58 36 29 12	Mon. 445-1----- Mon. 445-3-----	40.17 32.37
Mon. 443-5-----	45 17 32.26 70 50 03.80	135 02 07 317 57 14	Mon. 443-4----- Mon. 443-6-----	56.62 87.72	Mon. 445-3-----	45 16 01.57 70 50 30.58	216 29 11 44 20 13	Mon. 445-2----- Mon. 445-4-----	32.37 136.48
Mon. 443-6-----	45 17 30.15 70 50 01.11	137 57 16 321 04 56	Mon. 443-5----- Mon. 443-7-----	87.72 67.89	Mon. 445-4-----	45 15 58.41 70 50 34.95	224 20 10 50 42 06	Mon. 445-3----- Mon. 445-5-----	136.48 137.70
Mon. 443-7-----	45 17 28.44 70 49 59.15	141 04 57 296 05 05	Mon. 443-6----- Mon. 443-8-----	67.89 64.26	Mon. 445-5-----	45 15 55.58 70 50 39.84	230 42 03 66 38 00	Mon. 445-4----- Mon. 445-6-----	137.70 207.53
Mon. 443-8-----	45 17 27.53 70 49 56.50	116 05 07 259 47 45	Mon. 443-7----- Mon. 443-9-----	64.26 83.49	Mon. 445-6-----	45 15 52.92 70 50 48.58	246 37 54 50 42 37	Mon. 445-5----- Mon. 446-----	207.53 8.24



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 446-----	45 15 52.75 70 50 48.87	230 42 37 51 11 49	Mon. 445-6----- Mon. 446-1-----	8.24 215.56	Mon. 449-6-----	45 14 14.25 70 50 19.04	99 54 17 265 14 21	Mon. 449-5----- Mon. 449-7-----	46.67 77.77
Mon. 446-1-----	45 15 48.37 70 50 56.58	231 11 43 52 19 49	Mon. 446----- Mon. 446-2-----	215.56 46.49	Mon. 449-7-----	45 14 14.46 70 50 15.49	85 14 23 260 21 51	Mon. 449-6----- Mon. 449-8-----	77.77 33.58
Mon. 446-2-----	45 15 47.45 70 50 58.27	232 19 48 336 55 52	Mon. 446-1----- Mon. 446-3-----	46.49 60.57	Mon. 449-8-----	45 14 14.64 70 50 13.97	80 21 52 347 05 54	Mon. 449-7----- Mon. 450-----	33.58 0.59
Mon. 446-3-----	45 15 45.64 70 50 57.18	156 55 53 344 56 37	Mon. 446-2----- Mon. 446-4-----	60.57 71.29	Mon. 450-----	45 14 14.62 70 50 13.96	167 05 54 352 39 38	Mon. 449-8----- Mon. 450-1-----	0.59 43.06
Mon. 446-4-----	45 15 43.42 70 50 56.33	164 56 38 355 51 12	Mon. 446-3----- Mon. 446-5-----	71.29 99.09	Mon. 450-1-----	45 14 13.24 70 50 13.71	172 39 38 20 42 57	Mon. 450----- Mon. 450-2-----	43.06 180.50
Mon. 446-5-----	45 15 40.21 70 50 56.00	175 51 12 347 50 31	Mon. 446-4----- Mon. 446-6-----	99.09 60.54	Mon. 450-2-----	45 14 07.77 70 50 16.64	200 42 55 19 21 24	Mon. 450-1----- Mon. 450-3-----	180.50 48.56
Mon. 446-6-----	45 15 38.30 70 50 55.41	167 50 31 358 41 34	Mon. 446-5----- Mon. 446-7-----	60.54 179.48	Mon. 450-3-----	45 14 06.28 70 50 17.38	199 21 23 42 36 47	Mon. 450-2----- Mon. 450-4-----	48.56 55.89
Mon. 446-7-----	45 15 32.48 70 50 55.23	178 41 34 20 26 46	Mon. 446-6----- Mon. 446-8-----	179.48 290.15	Mon. 450-4-----	45 14 04.95 70 50 19.11	222 36 46 67 48 20	Mon. 450-3----- Mon. 450-5-----	55.89 116.36
Mon. 446-8-----	45 15 23.68 70 50 59.88	200 26 43 15 25 35	Mon. 446-7----- Mon. 446-9-----	290.15 67.06	Mon. 450-5-----	45 14 03.53 70 50 24.05	247 48 17 77 18 26	Mon. 450-4----- Mon. 450-6-----	116.36 80.93
Mon. 446-9-----	45 15 21.58 70 51 00.69	195 25 34 328 01 20	Mon. 446-8----- Mon. 447-----	67.06 163.40	Mon. 450-6-----	45 14 02.95 70 50 27.67	257 18 23 98 06 09	Mon. 450-5----- Mon. 450-7-----	80.93 87.96
Mon. 447-----	45 15 17.09 70 50 56.72	148 01 23 325 33 24	Mon. 446-9----- Mon. 447-1-----	163.40 36.19	Mon. 450-7-----	45 14 03.35 70 50 31.66	278 06 06 102 55 40	Mon. 450-6----- Mon. 450-8-----	87.96 148.57
Mon. 447-1-----	45 15 16.13 70 50 55.79	145 33 25 310 07 00	Mon. 447----- Mon. 447-2-----	36.19 174.12	Mon. 450-8-----	45 14 04.43 70 50 38.30	282 55 35 87 21 17	Mon. 450-7----- Mon. 450-9-----	148.57 215.51
Mon. 447-2-----	45 15 12.49 70 50 49.68	130 07 04 357 08 48	Mon. 447-1----- Mon. 447-3-----	174.12 41.04	Mon. 450-9-----	45 14 04.11 70 50 48.17	267 21 10 54 25 56	Mon. 450-8----- Mon. 450-10-----	215.51 123.08
Mon. 447-3-----	45 15 11.16 70 50 49.58	177 08 48 17 41 53	Mon. 447-2----- Mon. 447-4-----	41.04 47.43	Mon. 450-10-----	45 14 01.79 70 50 52.76	234 25 53 63 10 39	Mon. 450-9----- Mon. 450-11-----	123.08 77.88
Mon. 447-4-----	45 15 09.70 70 50 50.25	197 41 52 17 37 45	Mon. 447-3----- Mon. 447-5-----	47.43 343.37	Mon. 450-11-----	45 14 00.65 70 50 55.94	243 10 37 60 46 09	Mon. 450-10----- Mon. 450-12-----	77.88 129.92
Mon. 447-5-----	45 14 59.10 70 50 55.02	197 37 42 352 23 23	Mon. 447-4----- Mon. 447-6-----	343.37 56.28	Mon. 450-12-----	45 13 58.60 70 51 01.14	240 46 05 62 58 19	Mon. 450-11----- Mon. 450-13-----	129.92 76.96
Mon. 447-6-----	45 14 57.29 70 50 54.67	172 23 23 12 45 14	Mon. 447-5----- Mon. 447-7-----	56.28 139.60	Mon. 450-13-----	45 13 57.46 70 51 04.29	242 58 17 47 58 51	Mon. 450-12----- Mon. 450-14-----	76.96 60.77
Mon. 447-7-----	45 14 52.88 70 50 56.09	192 45 13 12 45 43	Mon. 447-6----- Mon. 448-----	139.60 125.94	Mon. 450-14-----	45 13 56.15 70 51 06.36	227 58 50 71 15 33	Mon. 450-13----- Mon. 451-----	60.77 23.52
Mon. 448-----	45 14 48.90 70 50 57.36	192 45 42 11 08 52	Mon. 447-7----- Mon. 448-1-----	125.94 34.07	Mon. 451-----	45 13 55.90 70 51 07.38	251 15 32 71 33 05	Mon. 450-14----- Mon. 451-1-----	23.52 51.45
Mon. 448-1-----	45 14 47.82 70 50 57.66	191 08 52 355 40 40	Mon. 448----- Mon. 448-2-----	34.07 150.39	Mon. 451-1-----	45 13 55.38 70 51 09.62	251 33 03 72 09 03	Mon. 451----- Mon. 451-2-----	51.45 53.57
Mon. 448-2-----	45 14 42.96 70 50 57.14	175 40 40 341 20 38	Mon. 448-1----- Mon. 448-3-----	150.39 98.18	Mon. 451-2-----	45 13 54.84 70 51 11.95	252 09 01 77 04 01	Mon. 451-1----- Mon. 451-3-----	53.57 39.96
Mon. 448-3-----	45 14 39.95 70 50 55.70	161 20 39 318 26 29	Mon. 448-2----- Mon. 448-4-----	98.18 220.83	Mon. 451-3-----	45 13 54.55 70 51 13.74	257 04 00 48 23 00	Mon. 451-2----- Mon. 451-4-----	39.96 78.36
Mon. 448-4-----	45 14 34.60 70 50 48.99	138 26 34 307 51 04	Mon. 448-3----- Mon. 448-5-----	220.83 172.00	Mon. 451-4-----	45 13 52.87 70 51 16.42	228 22 58 50 15 58	Mon. 451-3----- Mon. 451-5-----	78.36 133.02
Mon. 448-5-----	45 14 31.18 70 50 42.76	127 51 08 334 34 01	Mon. 448-4----- Mon. 448-6-----	172.00 37.41	Mon. 451-5-----	45 13 50.11 70 51 21.11	230 15 55 68 49 25	Mon. 451-4----- Mon. 451-6-----	133.02 44.79
Mon. 448-6-----	45 14 30.08 70 50 42.02	154 34 01 326 17 45	Mon. 448-5----- Mon. 449-----	37.41 114.97	Mon. 451-6-----	45 13 49.59 70 51 23.03	248 49 24 50 04 24	Mon. 451-5----- Mon. 451-7-----	44.79 76.54
Mon. 449-----	45 14 26.98 70 50 39.10	146 17 47 326 17 05	Mon. 448-6----- Mon. 449-1-----	114.97 41.35	Mon. 451-7-----	45 13 48.00 70 51 25.72	230 04 22 357 39 22	Mon. 451-6----- Mon. 451-8-----	76.54 31.19
Mon. 449-1-----	45 14 25.87 70 50 38.05	146 17 06 303 48 36	Mon. 449----- Mon. 449-2-----	41.35 127.11	Mon. 451-8-----	45 13 46.99 70 51 25.66	177 39 22 54 44 22	Mon. 451-7----- Mon. 451-9-----	31.19 94.48
Mon. 449-2-----	45 14 23.58 70 50 33.21	123 48 39 326 38 36	Mon. 449-1----- Mon. 449-3-----	127.11 72.38	Mon. 451-9-----	45 13 45.22 70 51 29.20	234 44 19 92 25 19	Mon. 451-8----- Mon. 451-10-----	94.48 51.92
Mon. 449-3-----	45 14 21.62 70 50 31.38	146 38 37 317 30 01	Mon. 449-2----- Mon. 449-4-----	72.38 257.21	Mon. 451-10-----	45 13 45.29 70 51 31.67	272 25 17 112 38 17	Mon. 451-9----- Mon. 451-11-----	51.92 60.80
Mon. 449-4-----	45 14 15.48 70 50 23.42	137 30 07 301 11 03	Mon. 449-3----- Mon. 449-5-----	257.21 57.83	Mon. 451-11-----	45 13 46.05 70 51 34.15	292 38 15 106 03 15	Mon. 451-10----- Mon. 451-12-----	60.80 232.08
Mon. 449-5-----	45 14 14.51 70 50 21.15	121 11 05 279 54 15	Mon. 449-4----- Mon. 449-6-----	57.83 46.67	Mon. 451-12-----	45 13 48.13 70 51 44.37	286 03 08 130 12 08	Mon. 451-11----- Mon. 451-13-----	232.08 54.83

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 451-13.....	45 13 49.28 70 51 46.29	310 12 07 127 57 07	Mon. 451-12..... Mon. 451-14.....	54.83 121.99	Mon. 455-1.....	45 14 28.28 70 53 45.92	345 57 15 121 53 45	Mon. 455..... Mon. 455-2.....	34.46 77.95
Mon. 451-14.....	45 13 51.71 70 51 50.70	307 57 04 109 35 04	Mon. 451-13..... Mon. 451-15.....	121.99 105.61	Mon. 455-2.....	45 14 29.61 70 53 48.95	301 53 43 133 24 56	Mon. 455-1..... Mon. 455-3.....	77.95 63.92
Mon. 451-15.....	45 13 52.86 70 51 55.26	289 35 01 96 29 01	Mon. 451-14..... Mon. 451-16.....	105.61 150.59	Mon. 455-3.....	45 14 31.04 70 53 51.08	313 24 54 208 10 57	Mon. 455-2..... Mon. 455-4.....	63.92 38.99
Mon. 451-16.....	45 13 53.41 70 52 02.12	276 28 56 112 45 56	Mon. 451-15..... Mon. 451-17.....	150.59 196.29	Mon. 455-4.....	45 14 32.15 70 53 50.24	28 10 58 219 04 47	Mon. 455-3..... Mon. 455-5.....	38.99 45.31
Mon. 451-17.....	45 13 55.87 70 52 10.42	292 45 50 120 47 50	Mon. 451-16..... Mon. 451-18.....	196.29 96.26	Mon. 455-5.....	45 14 33.29 70 53 48.93	39 04 48 162 29 15	Mon. 455-4..... Mon. 455-6.....	45.31 63.12
Mon. 451-18.....	45 13 57.46 70 52 14.21	300 47 47 113 59 47	Mon. 451-17..... Mon. 451-19.....	96.26 69.62	Mon. 455-6.....	45 14 35.24 70 53 49.80	342 29 14 99 01 38	Mon. 455-5..... Mon. 455-7.....	63.12 93.30
Mon. 451-19.....	45 13 58.38 70 52 17.12	293 59 45 118 37 45	Mon. 451-18..... Mon. 451-20.....	69.62 168.53	Mon. 455-7.....	45 14 35.71 70 53 54.02	279 01 35 146 56 08	Mon. 455-6..... Mon. 455-8.....	93.30 37.69
Mon. 451-20.....	45 14 01.00 70 52 23.90	298 37 40 113 01 40	Mon. 451-19..... Mon. 451-21.....	168.53 178.89	Mon. 455-8.....	45 14 36.74 70 53 54.97	326 56 07 165 49 38	Mon. 455-7..... Mon. 455-9.....	37.69 72.59
Mon. 451-21.....	45 14 03.26 70 52 31.45	293 01 35 69 18 35	Mon. 451-20..... Mon. 452.....	178.89 2.42	Mon. 455-9.....	45 14 39.02 70 53 55.78	345 49 37 185 21 02	Mon. 455-8..... Mon. 455-10.....	72.59 250.31
Mon. 452.....	45 14 03.23 70 52 31.56	249 18 35 69 16 43	Mon. 451-21..... Mon. 452-1.....	2.42 134.12	Mon. 455-10.....	45 14 47.09 70 53 54.71	5 21 03 193 35 42	Mon. 455-9..... Mon. 455-11.....	250.31 68.10
Mon. 452-1.....	45 14 01.70 70 52 37.31	249 16 39 74 01 01	Mon. 452..... Mon. 452-2.....	134.12 54.28	Mon. 455-11.....	45 14 49.23 70 53 53.98	13 35 43 186 02 14	Mon. 455-10..... Mon. 455-12.....	68.10 148.02
Mon. 452-2.....	45 14 01.21 70 52 39.70	254 00 59 83 41 38	Mon. 452-1..... Mon. 452-3.....	54.28 193.19	Mon. 455-12.....	45 14 54.00 70 53 53.26	6 02 14 208 04 35	Mon. 455-11..... Mon. 455-13.....	148.02 105.73
Mon. 452-3.....	45 14 00.53 70 52 48.50	263 41 32 134 46 04	Mon. 452-2..... Mon. 452-4.....	193.19 140.13	Mon. 455-13.....	45 14 57.02 70 53 50.98	28 04 37 200 31 03	Mon. 455-12..... Mon. 456.....	105.73 191.68
Mon. 452-4.....	45 14 03.72 70 52 53.06	314 46 01 89 05 50	Mon. 452-3..... Mon. 452-5.....	140.13 158.42	Mon. 456.....	45 15 02.84 70 53 47.90	20 31 05 205 52 48	Mon. 456-13..... Mon. 456-1.....	191.68 60.19
Mon. 452-5.....	45 14 03.64 70 53 00.32	269 05 45 157 14 29	Mon. 452-4..... Mon. 452-6.....	158.42 103.13	Mon. 456-1.....	45 15 04.59 70 53 46.70	25 52 49 200 58 49	Mon. 456..... Mon. 456-2.....	60.19 127.86
Mon. 452-6.....	45 14 06.72 70 53 02.15	337 14 28 69 26 43	Mon. 452-5..... Mon. 453.....	103.13 80.32	Mon. 456-2.....	45 15 08.46 70 53 44.60	20 58 50 149 34 50	Mon. 456-1..... Mon. 456-3.....	127.86 94.26
Mon. 453.....	45 14 05.81 70 53 05.60	249 26 40 90 04 04	Mon. 452-6..... Mon. 453-1.....	80.32 33.26	Mon. 456-3.....	45 15 11.09 70 53 46.78	329 34 48 118 19 18	Mon. 456-2..... Mon. 456-4.....	94.26 69.40
Mon. 453-1.....	45 14 05.81 70 53 07.12	270 04 03 140 23 14	Mon. 453..... Mon. 453-2.....	33.26 79.90	Mon. 456-4.....	45 15 12.16 70 53 49.59	298 19 16 136 46 16	Mon. 456-3..... Mon. 456-5.....	69.40 174.15
Mon. 453-2.....	45 14 07.80 70 53 09.46	320 23 12 126 37 51	Mon. 453-1..... Mon. 453-3.....	79.90 156.36	Mon. 456-5.....	45 15 16.27 70 53 55.06	316 46 12 155 34 12	Mon. 456-4..... Mon. 456-6.....	174.15 51.78
Mon. 453-3.....	45 14 10.82 70 53 15.21	306 37 47 139 15 10	Mon. 453-2..... Mon. 453-4.....	156.36 63.03	Mon. 456-6.....	45 15 17.79 70 53 56.04	335 34 11 173 51 11	Mon. 456-5..... Mon. 456-7.....	51.78 33.77
Mon. 453-4.....	45 14 12.37 70 53 17.10	319 15 09 137 21 13	Mon. 453-3..... Mon. 453-5.....	63.03 179.00	Mon. 456-7.....	45 15 18.88 70 53 56.20	353 51 11 203 19 11	Mon. 456-6..... Mon. 456-8.....	33.77 49.80
Mon. 453-5.....	45 14 16.64 70 53 22.66	317 21 09 167 10 31	Mon. 453-4..... Mon. 453-6.....	179.00 95.32	Mon. 456-8.....	45 15 20.36 70 53 55.30	23 19 12 162 51 12	Mon. 456-7..... Mon. 456-9.....	49.80 61.07
Mon. 453-6.....	45 14 19.65 70 53 25.63	347 10 30 111 14 50	Mon. 453-5..... Mon. 454.....	95.32 20.94	Mon. 456-9.....	45 15 22.25 70 53 56.13	342 51 11 180 40 11	Mon. 456-8..... Mon. 456-10.....	61.07 209.31
Mon. 454.....	45 14 19.90 70 53 24.52	291 14 50 109 25 15	Mon. 453-6..... Mon. 454-1.....	20.94 117.81	Mon. 456-10.....	45 15 29.03 70 53 56.02	0 40 11 156 50 11	Mon. 456-9..... Mon. 456-11.....	209.31 16.36
Mon. 454-1.....	45 14 21.16 70 53 29.61	289 25 11 79 16 12	Mon. 454..... Mon. 454-2.....	117.81 91.71	Mon. 456-11.....	45 15 29.52 70 53 56.31	336 50 11 160 56 11	Mon. 456-10..... Mon. 456-12.....	16.36 25.55
Mon. 454-2.....	45 14 20.61 70 53 33.74	259 16 09 90 45 52	Mon. 454-1..... Mon. 454-3.....	91.71 38.42	Mon. 456-12.....	45 15 30.30 70 53 56.69	340 56 11 145 02 11	Mon. 456-11..... Mon. 457.....	25.55 10.00
Mon. 454-3.....	45 14 20.63 70 53 35.50	270 45 51 132 35 52	Mon. 454-2..... Mon. 454-4.....	38.42 122.68	Mon. 457.....	45 15 30.57 70 53 56.96	325 02 11 136 45 46	Mon. 456-12..... Mon. 457-1.....	10.00 37.90
Mon. 454-4.....	45 14 23.32 70 53 39.64	312 35 49 123 52 50	Mon. 454-3..... Mon. 454-5.....	122.68 50.60	Mon. 457-1.....	45 15 31.46 70 53 58.15	316 45 45 98 58 30	Mon. 457..... Mon. 457-2.....	37.90 99.84
Mon. 454-5.....	45 14 24.23 70 53 41.57	303 52 49 132 32 25	Mon. 454-4..... Mon. 454-6.....	50.60 70.38	Mon. 457-2.....	45 15 31.96 70 54 02.67	278 58 27 134 47 49	Mon. 457-1..... Mon. 457-3.....	99.84 165.53
Mon. 454-6.....	45 14 25.49 70 53 44.26	303 32 23 152 09 34	Mon. 454-5..... Mon. 455.....	70.38 59.47	Mon. 457-3.....	45 15 35.74 70 54 08.06	314 47 45 121 16 03	Mon. 457-2..... Mon. 457-4.....	165.53 53.97
Mon. 455.....	45 14 27.20 70 53 45.54	332 09 33 165 57 15	Mon. 454-6..... Mon. 455-1.....	59.47 34.46	Mon. 457-4.....	45 15 36.65 70 54 10.17	301 16 01 126 47 51	Mon. 457-3..... Mon. 457-5.....	53.97 105.85

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 457-5	45 15 38.70 70 54 14.06	306 47 48 81 07 40	Mon. 457-4 Mon. 457-6	105.85 108.68	Mon. 460-4	45 16 38.72 70 55 01.15	2 41 21 120 05 37	Mon. 460-3 Mon. 460-5	69.64 38.40
Mon. 457-6	45 15 38.16 70 54 18.98	261 07 37 122 56 57	Mon. 457-5 Mon. 457-7	108.68 43.02	Mon. 460-5	45 16 39.35 70 55 02.68	300 05 36 107 10 12	Mon. 460-4 Mon. 460-6	38.40 151.00
Mon. 457-7	45 15 38.92 70 54 20.64	302 56 56 101 11 49	Mon. 457-6 Mon. 457-8	43.02 58.43	Mon. 460-6	45 16 40.79 70 55 09.29	287 10 07 114 36 53	Mon. 460-5 Mon. 460-7	151.00 54.37
Mon. 457-8	45 15 39.29 70 54 23.27	281 11 47 142 30 49	Mon. 457-7 Mon. 457-9	58.43 102.75	Mon. 460-7	45 16 41.53 70 55 11.56	294 36 51 119 10 02	Mon. 460-6 Mon. 460-8	54.37 162.81
Mon. 457-9	45 15 41.93 70 54 26.14	322 30 47 210 45 39	Mon. 457-8 Mon. 457-10	102.75 74.88	Mon. 460-8	45 16 44.10 70 55 18.08	299 09 57 158 23 11	Mon. 460-7 Mon. 460-9	162.81 47.43
Mon. 457-10	45 15 44.01 70 54 24.38	30 45 40 196 04 12	Mon. 457-9 Mon. 457-11	74.88 75.76	Mon. 460-9	45 16 45.52 70 55 18.88	338 23 10 169 39 31	Mon. 460-8 Mon. 460-10	47.43 148.13
Mon. 457-11	45 15 46.37 70 54 23.42	16 04 13 179 56 38	Mon. 457-10 Mon. 457-12	75.76 57.49	Mon. 460-10	45 16 50.24 70 55 20.10	349 39 30 237 22 24	Mon. 460-9 Mon. 460-11	148.13 85.74
Mon. 457-12	45 15 48.23 70 54 23.42	359 56 38 190 58 10	Mon. 457-11 Mon. 457-13	57.49 54.52	Mon. 460-11	45 16 51.74 70 55 16.79	57 22 26 186 02 07	Mon. 460-10 Mon. 460-12	85.74 52.18
Mon. 457-13	45 15 49.97 70 54 22.95	10 58 10 160 49 34	Mon. 457-12 Mon. 457-14	54.52 34.78	Mon. 460-12	45 16 53.42 70 55 16.54	6 02 07 190 25 13	Mon. 460-11 Mon. 460-13	52.18 58.89
Mon. 457-14	45 15 51.03 70 54 23.47	340 49 34 198 28 15	Mon. 457-13 Mon. 458	34.78 35.69	Mon. 460-13	45 16 55.30 70 55 16.05	10 25 13 191 02 55	Mon. 460-12 Mon. 460-14	58.89 371.07
Mon. 458	45 15 52.13 70 54 22.95	18 28 15 198 31 56	Mon. 457-14 Mon. 458-1	35.69 46.96	Mon. 460-14	45 17 07.10 70 55 12.79	11 02 58 227 17 35	Mon. 460-13 Mon. 460-15	371.07 104.85
Mon. 458-1	45 15 53.57 70 54 22.27	18 31 56 221 36 41	Mon. 458 Mon. 458-2	46.96 63.87	Mon. 460-15	45 17 09.40 70 55 09.25	47 17 38 178 50 35	Mon. 460-14 Mon. 460-16	104.85 158.97
Mon. 458-2	45 15 55.12 70 54 20.32	41 36 42 163 38 58	Mon. 458-1 Mon. 458-3	63.87 75.72	Mon. 460-16	45 17 14.55 70 55 09.40	358 50 35 226 43 07	Mon. 460-15 Mon. 460-17	158.97 80.71
Mon. 458-3	45 15 57.47 70 54 21.30	343 38 57 143 42 07	Mon. 458-2 Mon. 458-4	75.72 105.61	Mon. 460-17	45 17 16.34 70 55 06.70	46 43 09 202 26 46	Mon. 460-16 Mon. 461	80.71 39.19
Mon. 458-4	45 16 00.23 70 54 24.17	323 42 05 139 56 55	Mon. 458-3 Mon. 458-5	105.61 68.45	Mon. 461	45 17 17.51 70 55 06.02	22 26 47 198 02 22	Mon. 460-17 Mon. 461-1	39.19 55.58
Mon. 458-5	45 16 01.92 70 54 26.19	319 56 54 152 53 07	Mon. 458-4 Mon. 458-6	68.45 103.52	Mon. 461-1	45 17 19.22 70 55 05.23	18 02 23 215 47 19	Mon. 461 Mon. 461-2	55.58 163.70
Mon. 458-6	45 16 04.91 70 54 28.35	332 53 06 164 47 43	Mon. 458-5 Mon. 458-7	103.52 57.72	Mon. 461-2	45 17 23.53 70 55 00.83	35 47 22 225 37 13	Mon. 461-1 Mon. 461-3	163.70 104.15
Mon. 458-7	45 16 06.71 70 54 29.05	344 47 43 146 11 48	Mon. 458-6 Mon. 459	57.72 130.34	Mon. 461-3	45 17 25.89 70 54 57.42	45 37 15 247 49 06	Mon. 461-2 Mon. 461-4	104.15 40.88
Mon. 459	45 16 10.22 70 54 32.37	326 11 46 133 33 29	Mon. 458-7 Mon. 459-1	130.34 15.66	Mon. 461-4	45 17 26.39 70 54 55.68	67 49 07 189 26 58	Mon. 461-3 Mon. 461-5	40.88 82.59
Mon. 459-1	45 16 10.57 70 54 32.89	313 33 29 101 39 59	Mon. 459 Mon. 459-2	15.66 98.05	Mon. 461-5	45 17 29.03 70 54 55.06	9 26 59 184 42 45	Mon. 461-4 Mon. 461-6	82.59 52.34
Mon. 459-2	45 16 11.21 70 54 37.30	281 39 56 105 37 58	Mon. 459-1 Mon. 459-3	98.05 124.05	Mon. 461-6	45 17 30.72 70 54 54.86	4 42 45 261 26 01	Mon. 461-5 Mon. 461-7	52.34 68.01
Mon. 459-3	45 16 12.30 70 54 42.78	285 37 54 169 28 54	Mon. 459-2 Mon. 459-4	124.05 142.67	Mon. 461-7	45 17 31.04 70 54 51.78	81 26 03 180 38 30	Mon. 461-6 Mon. 461-8	68.01 66.83
Mon. 459-4	45 16 16.84 70 54 43.97	349 28 53 159 12 43	Mon. 459-3 Mon. 459-5	142.67 74.25	Mon. 461-8	45 17 33.21 70 54 51.74	0 38 30 190 59 22	Mon. 461-7 Mon. 462	66.83 63.22
Mon. 459-5	45 16 19.09 70 54 45.18	339 12 42 127 51 32	Mon. 459-4 Mon. 459-6	74.25 154.10	Mon. 462	45 17 35.22 70 54 51.19	10 59 23 189 46 21	Mon. 461-8 Mon. 462-1	63.22 225.80
Mon. 459-6	45 16 22.15 70 54 50.76	307 51 28 159 49 23	Mon. 459-5 Mon. 459-7	154.10 103.38	Mon. 462-1	45 17 42.43 70 54 49.43	9 46 22 210 59 50	Mon. 462 Mon. 462-2	225.80 84.16
Mon. 459-7	45 16 25.30 70 54 52.40	339 49 22 135 23 17	Mon. 459-6 Mon. 459-8	103.38 93.88	Mon. 462-2	45 17 44.76 70 54 47.44	30 59 51 213 25 52	Mon. 462-1 Mon. 462-3	84.16 85.12
Mon. 459-8	45 16 27.46 70 54 55.42	315 23 14 157 01 07	Mon. 459-7 Mon. 460	93.88 101.01	Mon. 462-3	45 17 47.06 70 54 45.29	33 25 54 170 53 19	Mon. 462-2 Mon. 462-4	85.12 64.07
Mon. 460	45 16 30.47 70 54 57.23	337 01 06 157 01 33	Mon. 459-8 Mon. 460-1	101.01 81.95	Mon. 462-4	45 17 49.11 70 54 45.76	350 53 19 161 39 07	Mon. 462-3 Mon. 462-5	64.07 405.97
Mon. 460-1	45 16 32.92 70 54 58.70	337 01 32 136 40 58	Mon. 460 Mon. 460-2	81.95 61.04	Mon. 462-5	45 18 01.60 70 54 51.62	341 39 03 137 42 17	Mon. 462-4 Mon. 462-6	405.97 190.13
Mon. 460-2	45 16 34.36 70 55 00.62	316 40 57 167 13 33	Mon. 460-1 Mon. 460-3	61.04 66.96	Mon. 462-6	45 18 06.15 70 54 57.49	317 42 13 141 09 46	Mon. 462-5 Mon. 463	190.13 183.19
Mon. 460-3	45 16 36.47 70 55 01.30	347 13 33 182 41 21	Mon. 460-2 Mon. 460-4	66.96 69.64	Mon. 463	45 18 10.77 70 55 02.76	321 09 42 140 37 35	Mon. 462-6 Mon. 463-1	183.19 339.73



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 463-1-----	45 18 19.28 70 55 12.66	320 37 28 196 50 47	Mon. 463----- Mon. 463-2-----	339.73 136.82	Mon. 465-11-----	45 19 45.91 70 56 46.95	301 54 54 119 34 28	Mon. 465-10----- Mon. 465-12-----	62.62 205.83
Mon. 463-2-----	45 18 23.52 70 55 10.84	16 50 48 169 33 39	Mon. 463-1----- Mon. 463-3-----	136.82 85.16	Mon. 465-12-----	45 19 49.20 70 56 55.17	299 34 22 158 30 44	Mon. 465-11----- Mon. 465-13-----	205.83 69.08
Mon. 463-3-----	45 18 26.23 70 55 11.54	349 33 38 139 04 14	Mon. 463-2----- Mon. 463-4-----	85.16 78.24	Mon. 465-13-----	45 19 51.28 70 56 56.33	338 30 43 122 43 31	Mon. 465-12----- Mon. 465-14-----	69.08 100.62
Mon. 463-4-----	45 18 28.15 70 55 11.90	319 04 12 203 29 48	Mon. 463-3----- Mon. 463-5-----	78.24 122.00	Mon. 465-14-----	45 19 53.05 70 57 00.22	302 43 28 214 29 54	Mon. 465-13----- Mon. 465-15-----	100.62 78.39
Mon. 463-5-----	45 18 31.77 70 55 11.66	23 29 50 181 39 01	Mon. 463-4----- Mon. 463-6-----	122.00 68.41	Mon. 465-15-----	45 19 55.14 70 56 58.18	34 29 55 159 52 16	Mon. 465-14----- Mon. 465-16-----	78.39 60.67
Mon. 463-6-----	45 18 33.99 70 55 11.57	1 39 01 203 42 50	Mon. 463-5----- Mon. 463-7-----	68.41 287.79	Mon. 465-16-----	45 19 56.98 70 56 59.14	339 52 15 152 49 14	Mon. 465-15----- Mon. 466-----	60.67 298.70
Mon. 463-7-----	45 18 42.52 70 55 06.26	23 42 54 134 13 45	Mon. 463-6----- Mon. 463-8-----	287.79 262.97	Mon. 466-----	45 20 05.59 70 57 05.40	332 49 10 184 54 34	Mon. 465-16----- Mon. 466-1-----	298.70 89.33
Mon. 463-8-----	45 18 48.47 70 55 14.91	314 13 39 113 14 55	Mon. 463-7----- Mon. 463-9-----	262.97 89.01	Mon. 466-1-----	45 20 08.48 70 57 05.05	4 54 34 186 01 23	Mon. 466----- Mon. 466-2-----	89.33 86.01
Mon. 463-9-----	45 18 49.60 70 55 18.66	293 14 52 105 45 42	Mon. 463-8----- Mon. 464-----	89.01 154.10	Mon. 466-2-----	45 20 11.25 70 57 04.64	6 01 23 196 02 29	Mon. 466-1----- Mon. 466-3-----	86.01 64.24
Mon. 464-----	45 18 50.96 70 55 25.47	285 45 38 109 46 44	Mon. 463-9----- Mon. 464-1-----	154.10 71.51	Mon. 466-3-----	45 20 13.25 70 57 03.82	16 02 30 196 58 28	Mon. 466-2----- Mon. 466-4-----	64.24 67.03
Mon. 464-1-----	45 18 51.74 70 55 28.56	289 46 42 127 35 16	Mon. 464----- Mon. 464-2-----	71.51 99.99	Mon. 466-4-----	45 20 15.32 70 57 02.92	16 58 29 153 18 05	Mon. 466-3----- Mon. 466-5-----	67.03 106.43
Mon. 464-2-----	45 18 53.72 70 55 32.20	307 35 13 77 23 07	Mon. 464-1----- Mon. 464-3-----	99.99 27.61	Mon. 466-5-----	45 20 18.40 70 57 05.12	333 18 03 130 24 53	Mon. 466-4----- Mon. 466-6-----	106.43 71.50
Mon. 464-3-----	45 18 53.52 70 55 33.44	257 23 06 93 28 03	Mon. 464-2----- Mon. 464-4-----	27.61 139.53	Mon. 466-6-----	45 20 19.90 70 57 07.62	310 24 51 120 14 51	Mon. 466-5----- Mon. 466-7-----	71.50 75.35
Mon. 464-4-----	45 18 53.80 70 55 39.83	273 27 58 165 46 45	Mon. 464-3----- Mon. 464-5-----	139.53 119.11	Mon. 466-7-----	45 20 21.13 70 57 10.61	300 14 49 88 55 49	Mon. 466-6----- Mon. 466-8-----	75.35 61.73
Mon. 464-5-----	45 18 57.54 70 55 41.18	345 46 44 121 06 31	Mon. 464-4----- Mon. 464-6-----	119.11 107.75	Mon. 466-8-----	45 20 21.10 70 57 13.45	268 55 47 62 23 20	Mon. 466-7----- Mon. 466-9-----	61.73 109.64
Mon. 464-6-----	45 18 59.34 70 55 45.41	301 06 28 111 48 57	Mon. 464-5----- Mon. 464-7-----	107.75 54.30	Mon. 466-9-----	45 20 19.45 70 57 17.91	242 23 17 86 28 22	Mon. 466-8----- Mon. 466-10-----	109.64 73.43
Mon. 464-7-----	45 18 59.99 70 55 47.72	291 48 55 169 05 42	Mon. 464-6----- Mon. 464-8-----	54.30 252.91	Mon. 466-10-----	45 20 19.30 70 57 21.27	266 28 20 62 12 42	Mon. 466-9----- Mon. 466-11-----	73.43 123.65
Mon. 464-8-----	45 19 08.04 70 55 49.92	349 05 41 100 59 55	Mon. 464-7----- Mon. 464-9-----	252.91 71.62	Mon. 466-11-----	45 20 17.44 70 57 26.30	242 12 39 97 46 07	Mon. 466-10----- Mon. 466-12-----	123.65 52.99
Mon. 464-9-----	45 19 08.48 70 55 53.15	280 59 53 104 12 42	Mon. 464-8----- Mon. 464-10-----	71.62 28.19	Mon. 466-12-----	45 20 17.67 70 57 28.71	277 46 05 62 48 39	Mon. 466-11----- Mon. 467-----	52.99 92.62
Mon. 464-10-----	45 19 08.70 70 55 54.40	284 12 41 99 47 55	Mon. 464-9----- Mon. 465-----	28.19 195.78	Mon. 467-----	45 20 16.30 70 57 32.49	242 48 36 38 27 06	Mon. 466-12----- Mon. 467-1-----	92.62 95.85
Mon. 465-----	45 19 09.78 70 56 03.26	279 47 49 100 39 26	Mon. 464-10----- Mon. 465-1-----	195.78 326.05	Mon. 467-1-----	45 20 13.86 70 57 35.23	218 27 04 74 54 40	Mon. 467----- Mon. 467-2-----	95.85 159.51
Mon. 465-1-----	45 19 11.74 70 56 17.97	280 39 16 99 55 13	Mon. 465----- Mon. 465-2-----	326.05 91.09	Mon. 467-2-----	45 20 12.52 70 57 42.30	254 54 35 37 49 51	Mon. 467-1----- Mon. 467-3-----	159.51 158.16
Mon. 465-2-----	45 19 12.24 70 56 22.09	279 55 10 159 52 04	Mon. 465-1----- Mon. 465-3-----	91.09 384.49	Mon. 467-3-----	45 20 08.47 70 57 46.76	217 49 48 41 01 40	Mon. 467-2----- Mon. 467-4-----	158.16 59.07
Mon. 465-3-----	45 19 23.94 70 56 28.17	339 52 00 107 29 49	Mon. 465-2----- Mon. 465-4-----	384.49 114.61	Mon. 467-4-----	45 20 07.03 70 57 48.54	221 01 39 35 29 46	Mon. 467-3----- Mon. 467-5-----	59.07 145.21
Mon. 465-4-----	45 19 25.05 70 56 33.19	287 29 45 107 55 03	Mon. 465-3----- Mon. 465-5-----	114.61 122.03	Mon. 467-5-----	45 20 03.20 70 57 52.41	215 29 43 57 29 40	Mon. 467-4----- Mon. 467-6-----	145.21 153.02
Mon. 465-5-----	45 19 26.27 70 56 38.52	287 54 59 145 55 33	Mon. 465-4----- Mon. 465-6-----	122.03 157.57	Mon. 467-6-----	45 20 00.54 70 57 58.34	237 29 36 108 53 17	Mon. 467-5----- Mon. 467-7-----	153.02 28.98
Mon. 465-6-----	45 19 30.50 70 56 42.57	325 55 30 146 18 02	Mon. 465-5----- Mon. 465-7-----	157.57 86.76	Mon. 467-7-----	45 20 00.84 70 57 59.60	288 53 16 107 43 56	Mon. 467-6----- Mon. 467-8-----	28.98 19.81
Mon. 465-7-----	45 19 32.84 70 56 44.78	326 18 01 191 51 31	Mon. 465-6----- Mon. 465-8-----	86.76 127.34	Mon. 467-8-----	45 20 01.04 70 58 00.46	287 43 55 31 04 31	Mon. 467-7----- Mon. 467-9-----	19.81 36.84
Mon. 465-8-----	45 19 36.87 70 56 43.58	11 51 32 207 37 57	Mon. 465-7----- Mon. 465-9-----	127.34 68.22	Mon. 467-9-----	45 20 00.01 70 58 01.34	211 04 30 40 48 02	Mon. 467-8----- Mon. 467-10-----	36.84 38.77
Mon. 465-9-----	45 19 38.83 70 56 42.13	27 37 58 164 23 06	Mon. 465-8----- Mon. 465-10-----	68.22 192.63	Mon. 467-10-----	45 19 59.06 70 58 02.50	220 48 01 26 23 13	Mon. 467-9----- Mon. 467-11-----	38.77 93.51
Mon. 465-10-----	45 19 44.84 70 56 44.51	344 23 04 121 54 56	Mon. 465-9----- Mon. 465-11-----	192.63 62.62	Mon. 467-11-----	45 19 56.35 70 58 04.41	206 23 12 84 05 23	Mon. 467-10----- Mon. 467-12-----	93.51 103.17

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 467-12	45 19 56.00 70 58 09.12	264 05 20 135 12 11	Mon. 467-11 Mon. 467-13	103.17 126.70	Mon. 469-7	45 20 24.42 70 59 51.61	298 28 09 129 34 15	Mon. 469-6 Mon. 469-8	140.80 249.60
Mon. 467-13	45 19 58.92 70 58 13.22	315 12 08 100 25 40	Mon. 467-12 Mon. 467-14	126.70 64.16	Mon. 469-8	45 20 29.57 71 00 00.44	309 34 09 131 24 13	Mon. 469-7 Mon. 469-9	249.60 30.47
Mon. 467-14	45 19 59.29 70 58 16.12	280 25 38 79 23 35	Mon. 467-13 Mon. 467-15	64.16 92.33	Mon. 469-9	45 20 30.22 71 00 01.49	311 24 12 133 32 12	Mon. 469-8 Mon. 469-10	30.47 64.05
Mon. 467-15	45 19 58.74 70 58 20.29	259 23 32 122 46 23	Mon. 467-14 Mon. 467-16	92.33 148.37	Mon. 469-10	45 20 31.65 71 00 03.63	313 32 10 160 53 44	Mon. 469-9 Mon. 469-11	64.05 135.13
Mon. 467-16	45 20 01.34 70 58 26.02	302 46 19 83 48 45	Mon. 467-15 Mon. 467-17	148.37 260.51	Mon. 469-11	45 20 35.79 71 00 05.66	340 53 43 151 21 19	Mon. 469-10 Mon. 469-12	135.13 59.57
Mon. 467-17	45 20 00.44 70 58 37.91	263 48 37 8 24 23	Mon. 467-16 Mon. 467-18	260.51 39.91	Mon. 469-12	45 20 37.48 71 00 06.97	331 21 18 174 38 18	Mon. 469-11 Mon. 469-13	59.57 57.31
Mon. 467-18	45 19 59.16 70 58 38.18	188 24 23 49 10 54	Mon. 467-17 Mon. 467-19	39.91 64.90	Mon. 469-13	45 20 39.33 71 00 07.22	354 38 18 90 19 10	Mon. 469-12 Mon. 469-14	57.31 68.86
Mon. 467-19	45 19 57.78 70 58 40.44	229 10 52 60 00 04	Mon. 467-18 Mon. 467-20	64.90 36.75	Mon. 469-14	45 20 39.34 71 00 10.38	270 19 08 121 26 48	Mon. 469-13 Mon. 469-15	68.86 37.61
Mon. 467-20	45 19 57.19 70 58 41.90	240 00 03 84 49 20	Mon. 467-19 Mon. 468	36.75 122.39	Mon. 469-15	45 20 39.97 71 00 11.85	301 26 47 130 59 55	Mon. 469-14 Mon. 469-16	37.61 173.83
Mon. 468	45 19 56.83 70 58 47.50	264 49 16 89 14 47	Mon. 467-20 Mon. 468-1	122.39 23.20	Mon. 469-16	45 20 43.67 71 00 17.88	310 59 51 118 30 41	Mon. 469-15 Mon. 469-17	173.83 533.32
Mon. 468-1	45 19 56.82 70 58 48.56	269 14 46 83 52 14	Mon. 468 Mon. 468-2	23.20 80.04	Mon. 469-17	45 20 51.91 71 00 39.41	298 30 25 93 22 01	Mon. 469-16 Mon. 470	533.32 21.90
Mon. 468-2	45 19 56.54 70 58 52.22	263 52 11 80 23 44	Mon. 468-1 Mon. 468-3	80.04 41.70	Mon. 470	45 20 51.96 71 00 40.41	273 22 00 44 59 02	Mon. 469-17 Mon. 470-1	21.90 53.73
Mon. 468-3	45 19 56.32 70 58 54.10	260 23 43 135 13 25	Mon. 468-2 Mon. 468-4	41.70 66.44	Mon. 470-1	45 20 50.72 71 00 42.16	224 59 01 354 53 58	Mon. 470 Mon. 470-2	53.73 45.84
Mon. 468-4	45 19 57.85 70 58 56.25	315 13 23 89 27 35	Mon. 468-3 Mon. 468-5	66.44 98.57	Mon. 470-2	45 20 49.24 71 00 41.97	174 53 58 22 15 39	Mon. 470-1 Mon. 470-3	45.84 43.19
Mon. 468-5	45 19 57.82 70 59 00.78	269 27 32 61 33 32	Mon. 468-4 Mon. 468-6	98.57 97.12	Mon. 470-3	45 20 47.95 71 00 42.72	202 15 39 20 08 01	Mon. 470-2 Mon. 470-4	43.19 59.16
Mon. 468-6	45 19 56.32 70 59 04.70	241 33 29 64 02 57	Mon. 468-5 Mon. 468-7	97.12 79.67	Mon. 470-4	45 20 46.15 71 00 43.66	200 08 00 18 59 28	Mon. 470-3 Mon. 470-5	59.16 78.60
Mon. 468-7	45 19 55.19 70 59 07.99	244 02 55 155 15 04	Mon. 468-6 Mon. 468-8	79.67 131.36	Mon. 470-5	45 20 43.74 71 00 44.83	198 59 27 38 37 58	Mon. 470-4 Mon. 470-6	78.60 94.75
Mon. 468-8	45 19 59.06 70 59 10.52	335 15 02 101 52 17	Mon. 468-7 Mon. 468-9	131.36 99.95	Mon. 470-6	45 20 41.35 71 00 47.55	213 37 56 27 40 54	Mon. 470-5 Mon. 470-7	94.75 62.04
Mon. 468-9	45 19 59.72 70 59 15.01	281 52 14 122 06 31	Mon. 468-8 Mon. 468-10	99.95 202.77	Mon. 470-7	45 20 39.57 71 00 48.87	207 40 53 324 58 56	Mon. 470-6 Mon. 470-8	62.04 59.18
Mon. 468-10	45 20 03.21 70 59 22.90	302 06 25 155 09 27	Mon. 468-9 Mon. 468-11	202.77 185.15	Mon. 470-8	45 20 38.00 71 00 47.31	144 58 57 358 36 18	Mon. 470-7 Mon. 470-9	59.18 282.31
Mon. 468-11	45 20 08.65 70 59 26.47	335 09 24 166 34 23	Mon. 468-10 Mon. 468-12	185.15 56.38	Mon. 470-9	45 20 28.85 71 00 47.00	178 36 18 322 20 29	Mon. 470-8 Mon. 470-10	282.31 164.53
Mon. 468-12	45 20 10.43 70 59 27.07	346 34 23 183 12 47	Mon. 468-11 Mon. 468-13	56.38 92.86	Mon. 470-10	45 20 24.64 71 00 42.38	142 20 33 0 29 03	Mon. 470-9 Mon. 470-11	164.53 26.64
Mon. 468-13	45 20 13.43 70 59 26.83	3 12 47 158 17 04	Mon. 468-12 Mon. 468-14	92.86 134.13	Mon. 470-11	45 20 23.77 71 00 42.39	180 29 03 323 59 11	Mon. 470-10 Mon. 470-12	26.64 35.94
Mon. 468-14	45 20 17.47 70 59 29.11	338 17 03 114 16 45	Mon. 468-13 Mon. 469	134.13 24.23	Mon. 470-12	45 20 22.83 71 00 41.42	143 59 12 36 08 50	Mon. 470-11 Mon. 470-13	35.94 56.29
Mon. 469	45 20 17.79 70 59 30.12	294 16 45 82 52 01	Mon. 468-14 Mon. 469-1	24.23 60.21	Mon. 470-13	45 20 21.36 71 00 42.94	216 08 49 333 09 00	Mon. 470-12 Mon. 470-14	56.29 127.26
Mon. 469-1	45 20 17.55 70 59 32.87	262 51 59 97 34 56	Mon. 469 Mon. 469-2	60.21 94.23	Mon. 470-14	45 20 17.68 71 00 40.30	153 09 01 63 13 52	Mon. 470-13 Mon. 470-15	127.26 72.45
Mon. 469-2	45 20 17.95 70 59 37.16	277 34 53 104 33 55	Mon. 469-1 Mon. 469-3	94.23 59.35	Mon. 470-15	45 20 16.62 71 00 43.28	243 13 50 1 53 41	Mon. 470-14 Mon. 470-16	72.45 79.75
Mon. 469-3	45 20 18.44 70 59 39.80	284 33 53 146 38 15	Mon. 469-2 Mon. 469-4	59.35 40.98	Mon. 470-16	45 20 14.04 71 00 43.40	181 53 41 347 12 48	Mon. 470-15 Mon. 470-17	79.75 69.06
Mon. 469-4	45 20 19.54 70 59 40.83	326 38 14 133 01 41	Mon. 469-3 Mon. 469-5	40.98 45.15	Mon. 470-17	45 20 11.86 71 00 42.69	167 12 49 320 42 34	Mon. 470-16 Mon. 470-18	69.06 47.17
Mon. 469-5	45 20 20.54 70 59 42.35	313 01 40 124 00 14	Mon. 469-4 Mon. 469-6	45.15 93.89	Mon. 470-18	45 20 10.68 71 00 41.32	140 42 35 359 24 52	Mon. 470-17 Mon. 470-19	47.17 161.05
Mon. 469-6	45 20 22.24 70 59 45.92	304 00 12 118 28 13	Mon. 469-5 Mon. 469-7	93.89 140.80	Mon. 470-19	45 20 05.46 71 00 41.25	179 24 52 34 27 08	Mon. 470-18 Mon. 470-20	161.05 47.77

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 470-20-----	45 20 04.18 71 00 42.49	214 27 07 89 21 06	Mon. 470-19----- Mon. 470-21-----	47.77 51.95	Mon. 471-21-----	45 19 03.57 71 00 45.22	230 43 22 55 42 47	Mon. 471-20----- Mon. 472-----	68.05 139.46
Mon. 470-21-----	45 20 04.17 71 00 44.87	269 21 04 16 36 12	Mon. 470-20----- Mon. 470-22-----	51.95 61.92	Mon. 472-----	45 19 01.03 71 00 50.51	235 42 43 88 59 02	Mon. 471-21----- Mon. 472-1-----	139.46 83.82
Mon. 470-22-----	45 20 02.24 71 00 45.69	196 36 11 306 12 38	Mon. 470-21----- Mon. 470-23-----	61.92 40.86	Mon. 472-1-----	45 19 00.98 71 00 54.36	268 58 59 87 31 59	Mon. 472----- Mon. 472-2-----	83.82 17.29
Mon. 470-23-----	45 20 01.46 71 00 44.17	126 12 39 277 07 29	Mon. 470-22----- Mon. 470-24-----	40.86 264.53	Mon. 472-2-----	45 19 00.96 71 00 55.15	267 31 58 61 18 58	Mon. 472-1----- Mon. 472-3-----	17.29 117.87
Mon. 470-24-----	45 20 00.40 71 00 32.12	97 07 38 306 49 54	Mon. 470-23----- Mon. 470-25-----	264.53 57.91	Mon. 472-3-----	45 18 59.12 71 00 59.90	241 18 55 7 54 10	Mon. 472-2----- Mon. 472-4-----	117.87 90.61
Mon. 470-25-----	45 19 59.27 71 00 29.99	126 49 56 306 38 52	Mon. 470-24----- Mon. 470-26-----	57.91 50.42	Mon. 472-4-----	45 18 56.22 71 01 00.47	187 54 10 82 30 50	Mon. 472-3----- Mon. 472-5-----	90.61 34.43
Mon. 470-26-----	45 19 58.30 71 00 28.13	126 38 53 276 40 03	Mon. 470-25----- Mon. 470-27-----	50.42 46.21	Mon. 472-5-----	45 18 56.07 71 01 02.04	262 30 49 78 50 29	Mon. 472-4----- Mon. 472-6-----	34.43 113.10
Mon. 470-27-----	45 19 58.12 71 00 26.02	96 40 04 339 48 42	Mon. 470-26----- Mon. 470-28-----	46.21 117.14	Mon. 472-6-----	45 18 55.36 71 01 07.13	258 50 25 98 23 35	Mon. 472-5----- Mon. 472-7-----	113.10 104.75
Mon. 470-28-----	45 19 55.36 71 00 22.34	136 48 45 316 19 43	Mon. 470-27----- Mon. 470-29-----	117.14 149.17	Mon. 472-7-----	45 18 55.86 71 01 11.89	278 23 31 57 12 51	Mon. 472-6----- Mon. 472-8-----	104.75 65.59
Mon. 470-29-----	45 19 51.86 71 00 17.61	136 19 46 339 52 05	Mon. 470-28----- Mon. 471-----	149.17 70.25	Mon. 472-8-----	45 18 54.71 71 01 14.42	237 12 49 83 12 19	Mon. 472-7----- Mon. 472-9-----	65.59 71.28
Mon. 471-----	45 19 49.73 71 00 16.50	159 52 06 321 03 33	Mon. 470-29----- Mon. 471-1-----	70.25 74.71	Mon. 472-9-----	45 18 54.43 71 01 17.67	263 12 17 36 55 17	Mon. 472-8----- Mon. 472-10-----	71.28 83.03
Mon. 471-1-----	45 19 47.85 71 00 14.34	141 03 35 5 39 33	Mon. 471----- Mon. 471-2-----	74.71 58.36	Mon. 472-10-----	45 18 52.28 71 01 19.96	216 55 15 90 11 30	Mon. 472-9----- Mon. 472-11-----	83.03 62.10
Mon. 471-2-----	45 19 45.96 71 00 14.61	185 39 33 318 26 31	Mon. 471-1----- Mon. 471-3-----	58.36 119.69	Mon. 472-11-----	45 18 52.29 71 01 22.81	270 11 28 126 33 58	Mon. 472-10----- Mon. 472-12-----	62.10 90.46
Mon. 471-3-----	45 19 43.06 71 00 10.96	138 26 34 284 58 52	Mon. 471-2----- Mon. 471-4-----	119.69 48.66	Mon. 472-12-----	45 18 54.04 71 01 26.15	306 33 56 117 17 16	Mon. 472-11----- Mon. 472-13-----	90.46 12.82
Mon. 471-4-----	45 19 42.66 71 00 08.80	104 58 54 33 05 32	Mon. 471-3----- Mon. 471-5-----	48.66 41.58	Mon. 472-13-----	45 18 54.23 71 01 26.67	297 17 16 141 15 06	Mon. 472-12----- Mon. 472-14-----	12.82 62.87
Mon. 471-5-----	45 19 41.53 71 00 09.85	213 05 31 58 17 44	Mon. 471-4----- Mon. 471-6-----	41.58 83.93	Mon. 472-14-----	45 18 55.81 71 01 28.48	321 15 05 76 35 45	Mon. 472-13----- Mon. 472-15-----	62.87 45.95
Mon. 471-6-----	45 19 40.10 71 00 13.13	238 17 42 59 58 46	Mon. 471-5----- Mon. 471-7-----	83.93 77.16	Mon. 472-15-----	45 18 55.47 71 01 30.53	256 35 43 74 28 43	Mon. 472-14----- Mon. 473-----	45.95 67.22
Mon. 471-7-----	45 19 38.85 71 00 16.19	239 58 44 20 38 15	Mon. 471-6----- Mon. 471-8-----	77.16 353.16	Mon. 473-----	45 18 54.89 71 01 33.50	254 28 41 68 00 50	Mon. 472-15----- Mon. 473-1-----	67.22 108.61
Mon. 471-8-----	45 19 28.14 71 00 21.91	200 38 11 29 46 09	Mon. 471-7----- Mon. 471-9-----	353.16 186.57	Mon. 473-1-----	45 18 53.57 71 01 38.13	248 00 47 69 28 02	Mon. 473----- Mon. 473-2-----	108.61 33.86
Mon. 471-9-----	45 19 23.00 71 00 26.16	209 46 06 34 17 54	Mon. 471-8----- Mon. 471-10-----	186.57 123.23	Mon. 473-2-----	45 18 53.18 71 01 39.58	249 28 01 21 29 31	Mon. 473-1----- Mon. 473-3-----	33.86 59.18
Mon. 471-10-----	45 19 19.60 71 00 29.35	214 17 52 33 13 16	Mon. 471-9----- Mon. 471-11-----	123.23 94.91	Mon. 473-3-----	45 18 51.40 71 01 40.58	201 29 30 56 11 00	Mon. 473-2----- Mon. 473-4-----	59.18 327.44
Mon. 471-11-----	45 19 17.03 71 00 31.74	213 13 14 9 47 42	Mon. 471-10----- Mon. 471-12-----	94.91 127.93	Mon. 473-4-----	45 18 45.50 71 01 53.07	236 10 51 21 01 36	Mon. 473-3----- Mon. 473-5-----	327.44 134.16
Mon. 471-12-----	45 19 12.94 71 00 32.74	189 47 41 322 00 12	Mon. 471-11----- Mon. 471-13-----	127.93 17.07	Mon. 473-5-----	45 18 41.44 71 01 55.28	201 01 34 34 52 19	Mon. 473-4----- Mon. 473-6-----	134.16 167.87
Mon. 471-13-----	45 19 12.51 71 00 32.25	142 00 12 333 06 15	Mon. 471-12----- Mon. 471-14-----	17.07 46.62	Mon. 473-6-----	45 18 36.98 71 01 59.68	214 52 16 83 37 16	Mon. 473-5----- Mon. 473-7-----	167.87 61.60
Mon. 471-14-----	45 19 11.16 71 00 31.29	153 06 16 32 28 29	Mon. 471-13----- Mon. 471-15-----	46.62 58.13	Mon. 473-7-----	45 18 36.76 71 02 02.49	263 37 14 58 57 44	Mon. 473-6----- Mon. 473-8-----	61.60 23.96
Mon. 471-15-----	45 19 09.57 71 00 32.72	212 28 28 57 19 26	Mon. 471-14----- Mon. 471-16-----	58.13 16.99	Mon. 473-8-----	45 18 36.36 71 02 03.44	238 57 43 141 16 43	Mon. 473-7----- Mon. 473-9-----	23.96 47.58
Mon. 471-16-----	45 19 09.28 71 00 33.38	237 19 25 60 18 39	Mon. 471-15----- Mon. 471-17-----	16.99 69.88	Mon. 473-9-----	45 18 37.56 71 02 04.80	321 16 42 112 10 27	Mon. 473-8----- Mon. 473-10-----	47.58 36.07
Mon. 471-17-----	45 19 08.16 71 00 36.16	240 18 37 23 08 55	Mon. 471-16----- Mon. 471-18-----	69.88 65.43	Mon. 473-10-----	45 18 38.00 71 02 06.33	292 10 26 159 04 56	Mon. 473-9----- Mon. 473-11-----	36.07 26.05
Mon. 471-18-----	45 19 07.57 71 00 39.05	253 59 53 61 08 51	Mon. 471-17----- Mon. 471-19-----	65.43 73.41	Mon. 473-11-----	45 18 38.79 71 02 06.76	339 04 56 88 49 11	Mon. 473-10----- Mon. 473-12-----	26.05 115.90
Mon. 471-19-----	45 19 06.42 71 00 42.00	241 08 49 21 08 15	Mon. 471-18----- Mon. 471-20-----	73.41 48.21	Mon. 473-12-----	45 18 38.71 71 02 12.08	268 49 07 132 58 52	Mon. 473-11----- Mon. 473-13-----	115.90 315.71
Mon. 471-20-----	45 19 04.97 71 00 42.80	201 08 14 50 43 24	Mon. 471-19----- Mon. 471-21-----	48.21 68.05	Mon. 473-13-----	45 18 45.68 71 02 22.68	312 58 45 42 19 30	Mon. 473-12----- Mon. 473-14-----	315.71 30.30



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 473-14-----	45 18 44.96 71 02 28.62	222 19 30 106 32 00	Mon. 473-13----- Mon. 473-15-----	30.30 51.75	Mon. 474-18-----	45 18 41.49 71 03 59.83	272 59 00 32 26 15	Mon. 474-17----- Mon. 474-19-----	31.79 60.91
Mon. 473-15-----	45 18 45.44 71 02 25.90	286 31 58 112 59 13	Mon. 473-14----- Mon. 473-16-----	51.75 61.84	Mon. 474-19-----	45 18 39.83 71 04 01.33	212 26 14 115 13 29	Mon. 474-18----- Mon. 474-20-----	60.91 46.74
Mon. 473-16-----	45 18 46.22 71 02 28.51	292 59 11 121 48 41	Mon. 473-15----- Mon. 473-17-----	61.84 75.04	Mon. 474-20-----	45 18 40.47 71 04 03.27	295 13 28 24 59 43	Mon. 474-19----- Mon. 474-21-----	46.74 42.48
Mon. 473-17-----	45 18 47.50 71 02 31.44	301 48 39 68 40 09	Mon. 473-16----- Mon. 473-18-----	75.04 77.57	Mon. 474-21-----	45 18 39.23 71 04 04.09	204 59 42 20 11 57	Mon. 474-20----- Mon. 474-22-----	42.48 28.70
Mon. 473-18-----	45 18 46.59 71 02 34.75	248 40 07 108 38 22	Mon. 473-17----- Mon. 473-19-----	77.57 95.98	Mon. 474-22-----	45 18 38.35 71 04 04.55	200 11 57 51 16 57	Mon. 474-21----- Mon. 474-23-----	28.70 115.05
Mon. 473-19-----	45 18 47.58 71 02 38.93	288 38 19 88 33 49	Mon. 473-18----- Mon. 473-20-----	95.98 140.65	Mon. 474-23-----	45 18 37.16 71 04 09.55	251 16 53 349 14 08	Mon. 474-22----- Mon. 474-24-----	115.05 63.82
Mon. 473-20-----	45 18 47.47 71 02 45.38	268 33 44 76 16 44	Mon. 473-19----- Mon. 473-21-----	140.65 51.04	Mon. 474-24-----	45 18 35.13 71 04 09.00	169 14 08 54 41 38	Mon. 474-23----- Mon. 474-25-----	63.82 39.86
Mon. 473-21-----	45 18 47.07 71 02 47.66	256 16 42 102 21 57	Mon. 473-20----- Mon. 473-22-----	51.04 50.90	Mon. 474-25-----	45 18 34.38 71 04 10.50	234 41 37 101 20 22	Mon. 474-24----- Mon. 474-26-----	39.86 37.01
Mon. 473-22-----	45 18 47.43 71 02 49.94	282 21 55 70 26 25	Mon. 473-21----- Mon. 473-23-----	50.90 438.79	Mon. 474-26-----	45 18 34.62 71 04 12.16	281 20 21 69 03 51	Mon. 474-25----- Mon. 474-27-----	37.01 50.02
Mon. 473-23-----	45 18 42.67 71 03 08.92	250 26 11 36 28 26	Mon. 473-22----- Mon. 473-24-----	438.79 41.28	Mon. 474-27-----	45 18 34.04 71 04 14.31	249 03 49 112 13 49	Mon. 474-26----- Mon. 474-28-----	50.02 39.37
Mon. 473-24-----	45 18 41.59 71 02 10.05	216 28 25 85 38 10	Mon. 473-23----- Mon. 473-25-----	41.28 74.49	Mon. 474-28-----	45 18 34.52 71 04 15.98	292 13 48 49 19 48	Mon. 474-27----- Mon. 474-29-----	39.37 178.23
Mon. 473-25-----	45 18 41.41 71 03 13.46	265 38 08 105 03 23	Mon. 473-24----- Mon. 473-26-----	74.49 43.68	Mon. 474-29-----	45 18 30.76 71 04 22.18	229 19 44 63 01 14	Mon. 474-28----- Mon. 474-30-----	178.23 118.12
Mon. 473-26-----	45 18 41.78 71 03 15.40	285 03 22 133 31 22	Mon. 473-25----- Mon. 474-----	43.68 142.52	Mon. 474-30-----	45 18 29.02 71 04 27.02	243 01 11 60 54 56	Mon. 474-29----- Mon. 474-31-----	118.12 61.41
Mon. 474-----	45 18 44.96 71 03 20.14	313 31 19 133 57 44	Mon. 473-26----- Mon. 474-1-----	142.52 81.56	Mon. 474-31-----	45 18 28.06 71 04 29.48	240 54 54 36 47 54	Mon. 474-30----- Mon. 474-32-----	61.41 90.63
Mon. 474-1-----	45 18 46.79 71 03 22.84	313 57 42 102 37 42	Mon. 474----- Mon. 474-2-----	81.56 120.01	Mon. 474-32-----	45 18 25.70 71 04 31.97	216 47 52 18 57 37	Mon. 474-31----- Mon. 474-33-----	90.63 133.80
Mon. 474-2-----	45 18 47.64 71 03 28.21	282 37 38 110 01 23	Mon. 474-1----- Mon. 474-3-----	120.01 22.37	Mon. 474-33-----	45 18 25.73 71 04 38.11	270 18 33 45 54 18	Mon. 474-32----- Mon. 474-34-----	133.80 54.05
Mon. 474-3-----	45 18 47.89 71 03 29.18	290 01 22 119 21 52	Mon. 474-2----- Mon. 474-4-----	22.37 140.90	Mon. 474-34-----	45 18 24.51 71 04 39.89	225 54 17 47 42 32	Mon. 474-33----- Mon. 474-35-----	54.05 20.53
Mon. 474-4-----	45 18 50.13 71 03 34.81	299 21 48 71 25 03	Mon. 474-3----- Mon. 474-5-----	140.90 74.70	Mon. 474-35-----	45 18 24.06 71 04 40.59	227 42 32 95 33 17	Mon. 474-34----- Mon. 474-36-----	20.53 66.34
Mon. 474-5-----	45 18 49.36 71 03 38.06	251 25 01 55 16 01	Mon. 474-4----- Mon. 474-6-----	74.70 30.27	Mon. 474-36-----	45 18 24.27 71 04 43.62	275 33 15 54 57 15	Mon. 474-35----- Mon. 474-37-----	66.34 40.25
Mon. 474-6-----	45 18 48.80 71 03 39.21	235 16 00 31 23 00	Mon. 474-5----- Mon. 474-7-----	30.27 62.33	Mon. 474-37-----	45 18 23.52 71 04 45.14	234 57 14 123 11 59	Mon. 474-36----- Mon. 474-38-----	40.25 121.86
Mon. 474-7-----	45 18 47.07 71 03 40.70	211 22 59 66 29 29	Mon. 474-6----- Mon. 474-8-----	62.33 41.55	Mon. 474-38-----	45 18 25.68 71 04 49.82	303 11 56 45 15 41	Mon. 474-37----- Mon. 474-39-----	121.86 37.82
Mon. 474-8-----	45 18 46.54 71 03 42.44	246 29 28 88 22 43	Mon. 474-7----- Mon. 474-9-----	41.55 88.77	Mon. 474-39-----	45 18 24.82 71 04 51.05	225 15 40 91 33 10	Mon. 474-38----- Mon. 474-40-----	37.82 24.14
Mon. 474-9-----	45 18 46.46 71 03 46.52	268 22 40 147 34 40	Mon. 474-8----- Mon. 474-10-----	88.77 41.12	Mon. 474-40-----	45 18 24.84 71 04 52.16	271 33 09 56 38 39	Mon. 474-39----- Mon. 474-41-----	24.14 101.00
Mon. 474-10-----	45 18 47.58 71 03 47.53	327 34 39 55 06 24	Mon. 474-9----- Mon. 474-11-----	41.12 61.55	Mon. 474-41-----	45 18 23.04 71 04 56.03	236 38 36 90 40 06	Mon. 474-40----- Mon. 474-42-----	101.00 84.05
Mon. 474-11-----	45 18 46.44 71 03 49.85	235 06 22 77 32 37	Mon. 474-10----- Mon. 474-12-----	61.55 63.28	Mon. 474-42-----	45 18 23.07 71 04 59.89	270 40 03 22 10 48	Mon. 474-41----- Mon. 474-43-----	84.05 71.82
Mon. 474-12-----	45 18 46.00 71 03 52.69	257 32 35 57 43 35	Mon. 474-11----- Mon. 474-13-----	63.28 57.57	Mon. 474-43-----	45 18 20.92 71 05 01.13	202 10 47 68 16 47	Mon. 474-42----- Mon. 475-----	71.82 76.58
Mon. 474-13-----	45 18 45.00 71 03 54.92	237 43 33 101 36 33	Mon. 474-12----- Mon. 474-14-----	57.57 68.49	Mon. 475-----	45 18 20.00 71 05 04.40	248 16 45 93 05 13	Mon. 474-43----- Mon. 475-1-----	76.58 32.13
Mon. 474-14-----	45 18 45.45 71 03 58.00	281 36 31 30 23 46	Mon. 474-13----- Mon. 474-15-----	68.49 63.41	Mon. 475-1-----	45 18 20.06 71 05 05.87	273 05 12 133 16 45	Mon. 475----- Mon. 475-2-----	32.13 34.77
Mon. 474-15-----	45 18 43.68 71 03 59.47	210 23 45 306 33 30	Mon. 474-14----- Mon. 474-16-----	63.41 74.04	Mon. 475-2-----	45 18 20.83 71 05 07.03	313 16 44 96 30 27	Mon. 475-1----- Mon. 475-3-----	34.77 78.77
Mon. 474-16-----	45 18 42.25 71 03 56.74	126 33 32 54 50 17	Mon. 474-15----- Mon. 474-17-----	74.04 43.37	Mon. 475-3-----	45 18 21.12 71 05 10.63	276 30 24 19 19 18	Mon. 475-2----- Mon. 475-4-----	78.77 47.09
Mon. 474-17-----	45 18 41.44 71 03 58.37	234 50 16 92 59 01	Mon. 474-16----- Mon. 474-18-----	43.37 31.79	Mon. 475-4-----	45 18 19.68 71 05 11.34	199 19 17 75 02 46	Mon. 475-3----- Mon. 475-5-----	47.09 80.73

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 475-5-----	45 18 19.00 71 05 14.92	255 02 43 349 37 02	Mon. 475-4----- Mon. 475-6-----	80.73 52.89	Mon. 476-28-----	45 17 29.78 71 06 17.12	188 50 31 41 25 17	Mon. 476-27----- Mon. 476-29-----	32.13 48.57
Mon. 475-6-----	45 18 17.32 71 05 14.48	169 37 02 81 52 41	Mon. 475-5----- Mon. 475-7-----	52.89 84.54	Mon. 476-29-----	45 17 28.61 71 06 18.60	221 25 16 98 58 52	Mon. 476-28----- Mon. 476-30-----	48.57 102.60
Mon. 475-7-----	45 18 16.93 71 05 18.33	261 52 39 99 10 37	Mon. 475-6----- Mon. 476-----	84.54 115.49	Mon. 476-30-----	45 17 29.12 71 06 23.25	278 58 49 62 23 45	Mon. 476-29----- Mon. 476-31-----	102.60 59.10
Mon. 476-----	45 18 17.52 71 05 23.56	279 10 34 59 01 54	Mon. 475-7----- Mon. 476-1-----	115.49 37.92	Mon. 476-31-----	45 17 28.24 71 06 25.65	242 23 43 16 40 13	Mon. 476-30----- Mon. 476-32-----	59.10 145.26
Mon. 476-1-----	45 18 16.89 71 05 25.05	239 01 53 50 36 33	Mon. 476----- Mon. 476-2-----	37.92 74.57	Mon. 476-32-----	45 17 23.73 71 06 27.57	196 40 11 62 42 17	Mon. 476-31----- Mon. 476-33-----	145.26 68.28
Mon. 476-2-----	45 18 15.36 71 05 27.70	230 36 31 80 01 21	Mon. 476-1----- Mon. 476-3-----	74.57 166.86	Mon. 476-33-----	45 17 22.72 71 06 30.35	242 42 15 13 28 55	Mon. 476-32----- Mon. 476-34-----	68.28 325.49
Mon. 476-3-----	45 18 14.42 71 05 35.24	260 01 16 46 07 47	Mon. 476-2----- Mon. 476-4-----	166.86 232.31	Mon. 476-34-----	45 17 12.46 71 06 33.83	193 28 52 14 15 27	Mon. 476-33----- Mon. 477-----	325.49 67.74
Mon. 476-4-----	45 18 09.21 71 05 42.93	226 07 42 10 52 58	Mon. 476-3----- Mon. 476-5-----	232.31 74.87	Mon. 477-----	45 17 10.34 71 06 34.60	194 15 26 41 09 52	Mon. 476-34----- Mon. 477-1-----	67.74 181.07
Mon. 476-5-----	45 18 08.39 71 05 46.16	250 12 56 85 37 22	Mon. 476-4----- Mon. 476-6-----	74.87 40.09	Mon. 477-1-----	45 17 05.92 71 06 40.07	221 09 48 30 37 33	Mon. 477----- Mon. 477-2-----	181.07 66.45
Mon. 476-6-----	45 18 08.29 71 05 47.99	265 37 20 98 27 50	Mon. 476-5----- Mon. 476-7-----	40.09 57.74	Mon. 477-2-----	45 17 04.07 71 06 41.62	210 37 32 294 39 02	Mon. 477-1----- Mon. 477-3-----	66.45 60.20
Mon. 476-7-----	45 18 08.56 71 05 50.62	278 27 48 56 44 34	Mon. 476-6----- Mon. 476-8-----	57.74 43.65	Mon. 477-3-----	45 17 03.26 71 06 39.11	114 39 04 356 33 44	Mon. 477-2----- Mon. 477-4-----	60.20 62.29
Mon. 476-8-----	45 18 07.79 71 05 52.29	236 44 33 23 15 04	Mon. 476-7----- Mon. 476-9-----	43.65 40.85	Mon. 477-4-----	45 17 01.24 71 06 38.94	176 33 44 344 07 24	Mon. 477-3----- Mon. 477-5-----	62.29 54.84
Mon. 476-9-----	45 18 06.57 71 05 53.03	203 15 03 82 46 49	Mon. 476-8----- Mon. 476-10-----	40.85 56.37	Mon. 477-5-----	45 16 59.54 71 06 38.25	164 07 25 321 08 05	Mon. 477-4----- Mon. 477-6-----	54.84 109.83
Mon. 476-10-----	45 18 06.34 71 05 55.60	262 46 47 10 58 23	Mon. 476-9----- Mon. 476-11-----	56.37 89.75	Mon. 477-6-----	45 16 56.76 71 06 35.09	141 08 07 273 51 42	Mon. 477-5----- Mon. 477-7-----	109.83 67.86
Mon. 476-11-----	45 18 03.49 71 05 56.38	190 58 22 330 17 52	Mon. 476-10----- Mon. 476-12-----	89.75 37.68	Mon. 477-7-----	45 16 56.62 71 06 31.98	93 51 44 256 18 04	Mon. 477-6----- Mon. 477-8-----	67.86 231.57
Mon. 476-12-----	45 18 02.43 71 05 55.29	150 17 53 8 01 29	Mon. 476-11----- Mon. 476-13-----	37.68 40.56	Mon. 477-8-----	45 16 58.39 71 06 21.66	76 18 11 2 06 51	Mon. 477-7----- Mon. 477-9-----	231.57 25.37
Mon. 476-13-----	45 18 01.13 71 05 55.79	188 01 29 68 33 15	Mon. 476-12----- Mon. 476-14-----	40.56 44.25	Mon. 477-9-----	45 16 57.57 71 06 21.70	182 06 51 28 08 16	Mon. 477-8----- Mon. 477-10-----	25.37 86.44
Mon. 476-14-----	45 18 00.60 71 05 57.68	248 33 14 29 25 44	Mon. 476-13----- Mon. 476-15-----	44.25 113.55	Mon. 477-10-----	45 16 55.10 71 06 23.57	208 08 15 46 08 35	Mon. 477-9----- Mon. 477-11-----	86.44 50.29
Mon. 476-15-----	45 17 57.40 71 06 00.24	209 25 42 45 32 22	Mon. 476-14----- Mon. 476-16-----	113.55 116.43	Mon. 477-11-----	45 16 53.97 71 06 25.24	226 08 34 348 37 54	Mon. 477-10----- Mon. 477-12-----	50.29 75.38
Mon. 476-16-----	45 17 54.76 71 06 04.05	225 32 19 48 39 04	Mon. 476-15----- Mon. 476-17-----	116.43 101.70	Mon. 477-12-----	45 16 51.58 71 06 24.56	168 37 54 10 31 29	Mon. 477-11----- Mon. 477-13-----	75.38 66.86
Mon. 476-17-----	45 17 52.58 71 06 07.56	228 39 01 44 49 21	Mon. 476-16----- Mon. 476-18-----	101.70 100.24	Mon. 477-13-----	45 16 49.45 71 06 25.12	190 31 29 354 31 49	Mon. 477-12----- Mon. 477-14-----	66.86 34.52
Mon. 476-18-----	45 17 50.28 71 06 10.80	224 49 19 34 52 04	Mon. 476-17----- Mon. 476-19-----	100.24 69.62	Mon. 477-14-----	45 16 48.34 71 06 24.96	174 31 49 52 02 19	Mon. 477-13----- Mon. 477-15-----	34.52 53.36
Mon. 476-19-----	45 17 48.43 71 06 12.63	214 52 03 45 24 19	Mon. 476-18----- Mon. 476-20-----	69.62 163.16	Mon. 477-15-----	45 16 47.27 71 06 26.89	232 02 18 8 34 26	Mon. 477-14----- Mon. 477-16-----	53.36 153.30
Mon. 476-20-----	45 17 44.72 71 06 17.96	225 24 15 30 44 55	Mon. 476-19----- Mon. 476-21-----	163.16 55.40	Mon. 477-16-----	45 16 42.36 71 06 27.94	188 34 25 39 46 12	Mon. 477-15----- Mon. 477-17-----	153.30 186.46
Mon. 476-21-----	45 17 43.17 71 06 19.26	210 44 54 44 17 35	Mon. 476-20----- Mon. 476-22-----	55.40 56.26	Mon. 477-17-----	45 16 37.72 71 06 33.41	219 46 08 92 29 46	Mon. 477-16----- Mon. 477-18-----	186.46 64.82
Mon. 476-22-----	45 17 41.87 71 06 21.06	224 17 34 8 23 50	Mon. 476-21----- Mon. 476-23-----	56.26 84.24	Mon. 477-18-----	45 16 37.81 71 06 36.38	272 29 44 41 08 06	Mon. 477-17----- Mon. 477-19-----	64.82 21.21
Mon. 476-23-----	45 17 39.17 71 06 21.63	188 23 50 345 40 10	Mon. 476-22----- Mon. 476-24-----	84.24 74.95	Mon. 477-19-----	45 16 37.30 71 06 37.02	221 08 06 19 13 45	Mon. 477-18----- Mon. 477-20-----	21.21 28.22
Mon. 476-24-----	45 17 36.82 71 06 20.78	165 40 11 316 34 57	Mon. 476-23----- Mon. 476-25-----	74.95 128.73	Mon. 477-20-----	45 16 36.43 71 06 37.45	199 13 45 341 33 30	Mon. 477-19----- Mon. 477-21-----	28.22 66.25
Mon. 476-25-----	45 17 33.79 71 06 16.72	136 35 00 342 53 56	Mon. 476-24----- Mon. 476-26-----	128.73 36.93	Mon. 477-21-----	45 16 34.40 71 06 36.49	161 33 31 41 33 37	Mon. 477-20----- Mon. 477-22-----	66.25 63.07
Mon. 476-26-----	45 17 32.64 71 06 16.22	162 53 56 14 37 47	Mon. 476-25----- Mon. 476-27-----	36.93 58.39	Mon. 477-22-----	45 16 32.87 71 06 38.41	221 33 36 50 17 32	Mon. 477-21----- Mon. 477-23-----	63.07 56.93
Mon. 476-27-----	45 17 30.81 71 06 16.90	194 37 46 8 50 31	Mon. 476-26----- Mon. 476-28-----	58.39 32.13	Mon. 477-23-----	45 16 31.69 71 06 40.42	230 17 31 110 08 08	Mon. 477-22----- Mon. 477-24-----	56.93 81.14

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 477-24-----	45 16 32.59 71 06 43.91	290 08 06 47 33 56	Mon. 477-23----- Mon. 477-25-----	81.14 50.22	Mon. 478-6-----	45 15 18.82 71 07 28.88	195 44 13 41 22 41	Mon. 478-5----- Mon. 478-7-----	95.90 101.06
Mon. 477-25-----	45 16 31.50 71 06 45.61	227 33 55 56 46 09	Mon. 477-24----- Mon. 477-26-----	50.22 108.64	Mon. 478-7-----	45 15 16.36 71 07 31.95	221 22 39 109 24 50	Mon. 478-6----- Mon. 478-8-----	101.06 53.92
Mon. 477-26-----	45 16 29.57 71 06 49.78	236 46 06 104 54 47	Mon. 477-25----- Mon. 477-27-----	108.64 65.16	Mon. 478-8-----	45 15 16.94 71 07 34.28	289 24 48 40 38 18	Mon. 478-7----- Mon. 478-9-----	53.92 104.44
Mon. 477-27-----	45 16 30.11 71 06 52.67	284 54 45 68 38 28	Mon. 477-26----- Mon. 477-28-----	65.16 119.02	Mon. 478-9-----	45 15 14.38 71 07 37.40	220 38 16 129 23 16	Mon. 478-8----- Mon. 478-10-----	104.44 46.00
Mon. 477-28-----	45 16 28.71 71 06 57.75	248 38 24 51 48 43	Mon. 477-27----- Mon. 477-29-----	119.02 83.98	Mon. 478-10-----	45 15 15.32 71 07 39.03	309 23 15 56 11 40	Mon. 478-9----- Mon. 478-11-----	46.00 95.21
Mon. 477-29-----	45 16 27.02 71 07 00.78	231 48 41 6 53 22	Mon. 477-28----- Mon. 477-30-----	83.98 100.61	Mon. 478-11-----	45 15 13.61 71 07 42.66	236 11 40 17 33 20	Mon. 478-10----- Mon. 478-12-----	95.21 77.61
Mon. 477-30-----	45 16 23.79 71 07 01.34	186 53 22 25 41 10	Mon. 477-29----- Mon. 477-31-----	100.61 58.62	Mon. 478-12-----	45 15 11.21 71 07 43.73	197 33 19 42 16 40	Mon. 478-11----- Mon. 478-13-----	77.61 79.82
Mon. 477-31-----	45 16 22.08 71 07 02.50	205 41 09 345 03 49	Mon. 477-30----- Mon. 477-32-----	58.62 149.60	Mon. 478-13-----	45 15 09.30 71 07 46.19	222 16 38 27 22 02	Mon. 478-12----- Mon. 478-14-----	79.82 135.74
Mon. 477-32-----	45 16 17.40 71 07 00.73	165 03 50 357 35 30	Mon. 477-31----- Mon. 477-33-----	149.60 106.93	Mon. 478-14-----	45 15 05.39 71 07 49.06	207 22 00 342 17 16	Mon. 478-13----- Mon. 478-15-----	135.74 81.53
Mon. 477-33-----	45 16 13.94 71 07 00.52	177 35 30 7 42 59	Mon. 477-32----- Mon. 477-34-----	106.93 113.23	Mon. 478-15-----	45 15 02.88 71 07 47.92	162 17 17 15 22 48	Mon. 478-14----- Mon. 478-16-----	81.53 72.98
Mon. 477-34-----	45 16 10.30 71 07 01.22	187 42 58 33 32 01	Mon. 477-33----- Mon. 477-35-----	113.23 152.76	Mon. 478-16-----	45 15 00.60 71 07 48.81	195 22 47 48 51 55	Mon. 478-15----- Mon. 478-17-----	72.98 50.89
Mon. 477-35-----	45 16 06.18 71 07 05.09	213 31 58 48 35 41	Mon. 477-34----- Mon. 477-36-----	152.76 83.89	Mon. 478-17-----	45 14 59.51 71 07 50.56	228 51 54 353 46 51	Mon. 478-16----- Mon. 478-18-----	50.89 62.91
Mon. 477-36-----	45 16 04.38 71 07 07.98	228 35 39 42 13 55	Mon. 477-35----- Mon. 477-37-----	83.89 99.79	Mon. 478-18-----	45 14 57.48 71 07 50.25	173 46 51 350 10 28	Mon. 478-17----- Mon. 478-19-----	62.91 77.67
Mon. 477-37-----	45 16 01.98 71 07 11.06	222 13 53 27 33 29	Mon. 477-36----- Mon. 477-38-----	99.79 82.31	Mon. 478-19-----	45 14 55.01 71 07 49.64	170 10 28 29 43 56	Mon. 478-18----- Mon. 478-20-----	77.67 141.10
Mon. 477-38-----	45 15 59.62 71 07 01.80	207 33 28 16 15 46	Mon. 477-37----- Mon. 477-39-----	82.31 154.10	Mon. 478-20-----	45 14 51.04 71 07 52.85	209 43 54 6 59 23	Mon. 478-19----- Mon. 478-21-----	141.10 97.75
Mon. 477-39-----	45 15 54.83 71 07 14.78	196 15 45 350 00 41	Mon. 477-38----- Mon. 477-40-----	154.10 103.56	Mon. 478-21-----	45 14 47.89 71 07 53.40	186 59 23 33 12 57	Mon. 478-20----- Mon. 478-22-----	97.75 111.79
Mon. 477-40-----	45 15 51.52 71 07 13.96	170 00 42 23 33 53	Mon. 477-39----- Mon. 477-41-----	103.56 67.49	Mon. 478-22-----	45 14 44.86 71 07 56.21	213 12 55 37 00 50	Mon. 478-21----- Mon. 478-23-----	111.79 98.32
Mon. 477-41-----	45 15 49.52 71 07 15.20	203 33 52 307 53 35	Mon. 477-40----- Mon. 477-42-----	67.49 108.65	Mon. 478-23-----	45 14 42.32 71 07 58.92	217 00 48 32 50 39	Mon. 478-22----- Mon. 478-24-----	98.32 64.83
Mon. 477-42-----	45 15 47.36 71 07 11.26	127 53 38 28 02 09	Mon. 477-41----- Mon. 477-43-----	108.65 72.54	Mon. 478-24-----	45 14 40.56 71 08 00.53	212 50 38 59 37 22	Mon. 478-23----- Mon. 478-25-----	64.83 95.96
Mon. 477-43-----	45 15 45.29 71 07 12.83	208 02 08 341 55 03	Mon. 477-42----- Mon. 477-44-----	72.54 48.84	Mon. 478-25-----	45 14 38.98 71 08 04.33	239 37 19 73 20 07	Mon. 478-24----- Mon. 478-26-----	95.96 35.28
Mon. 477-44-----	45 15 43.78 71 07 12.13	161 55 03 7 11 23	Mon. 477-43----- Mon. 477-45-----	48.84 50.59	Mon. 478-26-----	45 14 38.66 71 08 05.88	253 20 06 65 33 06	Mon. 478-25----- Mon. 478-27-----	35.28 48.01
Mon. 477-45-----	45 15 42.16 71 07 12.42	187 11 23 82 01 31	Mon. 477-44----- Mon. 477-46-----	50.59 40.73	Mon. 478-27-----	45 14 38.01 71 08 07.88	245 33 05 81 38 03	Mon. 478-26----- Mon. 478-28-----	48.01 60.37
Mon. 477-46-----	45 15 41.97 71 07 14.27	262 01 30 40 46 19	Mon. 477-45----- Mon. 477-47-----	40.73 68.63	Mon. 478-28-----	45 14 37.73 71 08 10.62	261 38 01 98 16 54	Mon. 478-27----- Mon. 478-29-----	60.37 109.75
Mon. 477-47-----	45 15 40.29 71 07 16.33	220 46 17 28 11 11	Mon. 477-46----- Mon. 477-48-----	68.63 99.50	Mon. 478-29-----	45 14 38.24 71 08 15.60	278 16 50 67 52 52	Mon. 478-28----- Mon. 478-30-----	109.75 98.27
Mon. 477-48-----	45 15 37.45 71 07 18.48	208 11 09 43 35 38	Mon. 477-47----- Mon. 478-----	99.50 125.87	Mon. 478-30-----	45 14 37.04 71 08 19.78	247 52 49 43 22 33	Mon. 478-29----- Mon. 478-31-----	98.27 114.08
Mon. 478-----	45 15 34.50 71 07 22.47	223 35 35 43 26 00	Mon. 477-48----- Mon. 478-1-----	125.87 151.46	Mon. 478-31-----	45 14 34.36 71 08 23.37	223 22 30 90 20 04	Mon. 478-30----- Mon. 478-32-----	114.08 87.92
Mon. 478-1-----	45 15 30.93 71 07 27.24	223 25 56 56 25 57	Mon. 478----- Mon. 478-2-----	151.46 22.29	Mon. 478-32-----	45 14 34.37 71 08 27.40	270 20 01 72 23 33	Mon. 478-31----- Mon. 478-33-----	87.92 95.15
Mon. 478-2-----	45 15 30.53 71 07 28.09	236 25 56 15 47 09	Mon. 478-1----- Mon. 478-3-----	22.29 103.77	Mon. 478-33-----	45 14 33.44 71 08 31.56	252 23 30 90 39 05	Mon. 478-32----- Mon. 478-34-----	95.15 155.85
Mon. 478-3-----	45 15 27.30 71 07 29.39	195 47 08 346 05 49	Mon. 478-2----- Mon. 478-4-----	103.77 43.71	Mon. 478-34-----	45 14 33.50 71 08 38.70	270 39 00 54 14 27	Mon. 478-33----- Mon. 478-35-----	155.85 54.74
Mon. 478-4-----	45 15 25.92 71 07 28.91	166 05 49 348 12 01	Mon. 478-3----- Mon. 478-5-----	43.71 129.79	Mon. 478-35-----	45 14 32.46 71 08 40.74	234 14 26 48 52 16	Mon. 478-34----- Mon. 479-----	54.74 177.47
Mon. 478-5-----	45 15 21.81 71 07 27.69	168 12 02 15 44 14	Mon. 478-4----- Mon. 478-6-----	129.79 95.90	Mon. 479-----	45 14 28.68 71 08 46.87	228 52 12 13 50 32	Mon. 478-35----- Mon. 479-1-----	177.47 32.40



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 479-1	45 14 27.66 71 08 47.22	193 50 32 31 35 54	Mon. 479	32.40	Mon. 480-16	45 14 54.72 71 09 31.16	288 29 49 117 17 49	Mon. 480-15	88.80
			Mon. 479-2	93.06				Mon. 480-17	90.63
Mon. 479-2	45 14 25.09 71 08 49.46	211 35 52 340 52 18	Mon. 479-1	93.06	Mon. 480-17	45 14 56.06 71 09 34.86	297 17 46 86 09 41	Mon. 480-16	90.63
			Mon. 479-3	57.64				Mon. 480-18	58.39
Mon. 479-3	45 14 23.33 71 08 48.59	160 52 19 72 28 20	Mon. 479-2	57.64	Mon. 480-18	45 14 55.93 71 09 37.53	266 09 39 130 19 14	Mon. 480-17	58.39
			Mon. 479-4	107.22				Mon. 480-19	105.68
Mon. 479-4	45 14 22.28 71 08 53.28	252 28 17 98 19 02	Mon. 479-3	107.22	Mon. 480-19	45 14 58.15 71 09 41.22	310 19 11 131 45 55	Mon. 480-18	105.68
			Mon. 479-5	37.78				Mon. 480-20	69.56
Mon. 479-5	45 14 22.46 71 08 55.00	278 19 01 140 56 18	Mon. 479-4	37.78	Mon. 480-20	45 14 59.65 71 09 43.60	311 45 54 142 08 47	Mon. 480-19	69.56
			Mon. 479-6	34.11				Mon. 480-21	38.19
Mon. 479-6	45 14 23.32 71 08 55.98	320 56 17 208 17 03	Mon. 479-5	34.11	Mon. 480-21	45 15 00.63 71 09 44.68	322 08 46 126 35 46	Mon. 480-20	38.19
			Mon. 479-7	29.71				Mon. 481	48.32
Mon. 479-7	45 14 24.17 71 08 55.33	28 17 03 194 37 28	Mon. 479-6	29.71	Mon. 481	45 15 01.56 71 09 46.45	306 35 45 28 20 51	Mon. 480-21	48.32
			Mon. 479-8	33.77				Mon. 481-1	94.40
Mon. 479-8	45 14 25.22 71 08 54.28	14 37 28 207 35 20	Mon. 479-7	33.77	Mon. 481-1	45 14 58.87 71 09 48.51	208 20 50 56 15 59	Mon. 481	94.40
			Mon. 479-9	43.93				Mon. 481-2	35.10
Mon. 479-9	45 14 26.49 71 08 54.01	27 35 21 224 40 16	Mon. 479-8	43.93	Mon. 481-2	45 14 58.24 71 09 49.85	236 15 58 36 33 31	Mon. 481-1	35.10
			Mon. 479-10	47.35				Mon. 481-3	79.28
Mon. 479-10	45 14 27.58 71 08 52.48	44 40 17 166 52 24	Mon. 479-9	47.35	Mon. 481-3	45 14 56.17 71 09 52.02	216 33 29 106 05 47	Mon. 481-2	79.28
			Mon. 479-11	34.16				Mon. 481-4	95.02
Mon. 479-11	45 14 28.66 71 08 52.84	346 52 24 138 11 07	Mon. 479-10	34.16	Mon. 481-4	45 14 57.03 71 09 56.20	286 05 44 31 48 18	Mon. 481-3	95.02
			Mon. 479-12	46.02				Mon. 481-5	73.36
Mon. 479-12	45 14 29.77 71 08 54.25	318 11 06 175 49 28	Mon. 479-11	46.02	Mon. 481-5	45 14 55.01 71 09 57.98	211 48 17 52 18 41	Mon. 481-4	73.36
			Mon. 479-13	48.43				Mon. 481-6	29.51
Mon. 479-13	45 14 31.33 71 08 54.41	355 49 48 168 09 21	Mon. 479-12	48.43	Mon. 481-6	45 14 54.42 71 09 59.05	232 18 40 41 19 23	Mon. 481-5	29.51
			Mon. 479-14	56.11				Mon. 481-7	101.74
Mon. 479-14	45 14 33.11 71 08 54.94	348 09 21 137 46 56	Mon. 479-13	56.11	Mon. 481-7	45 14 51.95 71 10 02.13	221 19 21 8 53 12	Mon. 481-6	101.74
			Mon. 479-15	64.01				Mon. 481-8	22.20
Mon. 479-15	45 14 34.65 71 08 56.91	317 46 54 132 58 21	Mon. 479-14	64.01	Mon. 481-8	45 14 51.24 71 10 02.28	188 53 12 48 23 06	Mon. 481-7	22.20
			Mon. 480	89.10				Mon. 481-9	80.32
Mon. 480	45 14 36.61 71 08 59.90	312 58 19 132 43 35	Mon. 479-15	89.10	Mon. 481-9	45 14 49.51 71 10 05.04	228 23 04 95 46 16	Mon. 481-8	80.32
			Mon. 480-1	3.35				Mon. 481-10	47.06
Mon. 480-1	45 14 36.69 71 09 00.01	312 43 35 116 17 30	Mon. 480	3.35	Mon. 481-10	45 14 49.66 71 10 07.18	275 46 14 41 31 13	Mon. 481-9	47.06
			Mon. 480-2	55.95				Mon. 481-11	27.00
Mon. 480-2	45 14 37.49 71 09 02.31	296 17 28 100 54 23	Mon. 480-1	55.95	Mon. 481-11	45 14 49.01 71 10 08.00	221 31 13 25 52 33	Mon. 481-10	27.00
			Mon. 480-3	55.68				Mon. 481-12	46.97
Mon. 480-3	45 14 37.83 71 09 04.82	280 54 21 140 55 15	Mon. 480-2	55.68	Mon. 481-12	45 14 47.64 71 10 08.94	205 52 32 39 28 03	Mon. 481-11	46.97
			Mon. 480-4	111.81				Mon. 481-13	30.10
Mon. 480-4	45 14 40.64 71 09 08.05	320 55 13 119 48 06	Mon. 480-3	111.81	Mon. 481-13	45 14 46.89 71 10 09.82	219 28 03 128 55 53	Mon. 481-12	30.10
			Mon. 480-5	86.54				Mon. 481-14	62.63
Mon. 480-5	45 14 42.04 71 09 11.49	299 48 04 139 14 50	Mon. 480-4	86.54	Mon. 481-14	45 14 48.16 71 10 12.06	308 55 51 42 37 25	Mon. 481-13	62.63
			Mon. 480-6	126.71				Mon. 481-15	32.08
Mon. 480-6	45 14 45.15 71 09 15.28	319 14 47 108 53 58	Mon. 480-5	126.71	Mon. 481-15	45 14 47.40 71 10 13.05	222 37 24 119 58 01	Mon. 481-14	32.08
			Mon. 480-7	88.58				Mon. 481-16	39.39
Mon. 480-7	45 14 46.08 71 09 19.13	288 53 55 139 25 04	Mon. 480-6	88.58	Mon. 481-16	45 14 48.04 71 10 14.62	299 58 00 37 46 24	Mon. 481-15	39.39
			Mon. 480-8	58.20				Mon. 481-17	85.95
Mon. 480-8	45 14 47.51 71 09 20.86	319 25 03 91 12 29	Mon. 480-7	58.20	Mon. 481-17	45 14 45.83 71 10 17.03	217 46 22 92 43 25	Mon. 481-16	85.95
			Mon. 480-9	59.12				Mon. 481-18	85.20
Mon. 480-9	45 14 47.55 71 09 23.57	271 12 27 202 52 50	Mon. 480-8	59.12	Mon. 481-18	45 14 45.96 71 10 20.93	272 43 22 106 34 39	Mon. 481-17	85.20
			Mon. 480-10	55.47				Mon. 481-19	59.34
Mon. 480-10	45 14 49.20 71 09 22.58	22 52 51 147 27 49	Mon. 480-9	55.47	Mon. 481-19	45 14 46.51 71 10 23.54	286 34 37 110 08 04	Mon. 481-18	59.34
			Mon. 480-11	71.18				Mon. 481-20	47.74
Mon. 480-11	45 14 51.15 71 09 24.34	327 27 48 92 52 00	Mon. 480-10	71.18	Mon. 481-20	45 14 47.05 71 10 25.60	290 08 03 23 48 19	Mon. 481-19	47.74
			Mon. 480-12	56.69				Mon. 481-21	61.24
Mon. 480-12	45 14 51.24 71 09 26.94	272 51 58 156 36 53	Mon. 480-11	56.69	Mon. 481-21	45 14 45.23 71 10 26.73	203 48 18 54 23 52	Mon. 481-20	61.24
			Mon. 480-13	21.48				Mon. 481-22	63.15
Mon. 480-13	45 14 51.88 71 09 27.33	336 36 53 201 07 10	Mon. 480-12	21.48	Mon. 481-22	45 14 44.04 71 10 29.08	234 23 50 90 23 03	Mon. 481-21	63.15
			Mon. 480-14	37.00				Mon. 481-23	27.68
Mon. 480-14	45 14 53.00 71 09 26.72	21 07 10 152 43 55	Mon. 480-13	37.00	Mon. 481-23	45 14 44.05 71 10 30.35	270 23 02 32 56 32	Mon. 481-22	27.68
			Mon. 480-15	27.95				Mon. 481-24	41.60
Mon. 480-15	45 14 53.80 71 09 27.30	332 43 55 108 29 52	Mon. 480-14	27.95	Mon. 481-24	45 14 42.92 71 10 31.39	212 56 31 58 28 53	Mon. 481-23	41.60
			Mon. 480-16	88.80				Mon. 481-25	25.59

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 481-25	45 14 42.48 71 10 32.39	238 28 52 45 12 25	Mon. 481-24 Mon. 481-26	25.59 59.19	Mon. 482-20	45 14 40.11 71 11 14.85	285 09 31 136 54 52	Mon. 482-19 Mon. 482-21	67.79 102.42
Mon. 481-26	45 14 41.13 71 10 34.32	225 12 24 37 45 58	Mon. 481-25 Mon. 481-27	59.19 63.97	Mon. 482-21	45 14 42.53 71 11 18.06	316 54 50 198 39 29	Mon. 482-20 Mon. 482-22	102.42 37.19
Mon. 481-27	45 14 39.49 71 10 36.11	217 45 57 70 33 34	Mon. 481-26 Mon. 481-28	63.97 57.68	Mon. 482-22	45 14 43.68 71 11 17.51	18 39 29 204 36 58	Mon. 482-21 Mon. 482-23	37.19 66.35
Mon. 481-28	45 14 38.87 71 10 38.61	250 33 32 15 41 48	Mon. 481-27 Mon. 481-29	57.68 38.89	Mon. 482-23	45 14 45.63 71 11 16.24	24 36 59 161 51 59	Mon. 482-22 Mon. 482-24	66.35 42.70
Mon. 481-29	45 14 37.66 71 10 39.09	195 41 48 23 37 01	Mon. 481-28 Mon. 481-30	38.89 77.50	Mon. 482-24	45 14 46.94 71 11 16.85	341 51 59 198 40 35	Mon. 482-23 Mon. 482-25	42.70 27.08
Mon. 481-30	45 14 35.36 71 10 40.51	203 37 00 40 55 08	Mon. 481-29 Mon. 481-31	77.50 49.83	Mon. 482-25	45 14 47.78 71 11 16.46	18 40 35 165 33 48	Mon. 482-24 Mon. 482-26	27.08 126.39
Mon. 481-31	45 14 34.14 71 10 42.01	220 55 07 24 26 13	Mon. 481-30 Mon. 481-32	49.83 95.66	Mon. 482-26	45 14 51.74 71 11 17.90	345 33 47 115 39 27	Mon. 482-25 Mon. 482-27	126.39 42.02
Mon. 481-32	45 14 31.32 71 10 43.82	204 26 12 6 55 35	Mon. 481-31 Mon. 481-33	95.66 64.24	Mon. 482-27	45 14 52.33 71 11 19.64	295 39 26 92 03 23	Mon. 482-26 Mon. 482-28	42.02 61.32
Mon. 481-33	45 14 29.25 71 10 44.18	186 55 35 66 34 50	Mon. 481-32 Mon. 481-34	64.24 63.36	Mon. 482-28	45 14 52.40 71 11 22.45	272 03 21 49 39 21	Mon. 482-27 Mon. 482-29	61.32 36.31
Mon. 481-34	45 14 28.44 71 10 46.85	246 34 48 29 39 07	Mon. 481-33 Mon. 481-35	63.36 81.38	Mon. 482-29	45 14 51.64 71 11 23.72	229 39 20 99 53 20	Mon. 482-28 Mon. 482-30	36.31 36.08
Mon. 481-35	45 14 26.14 71 10 48.69	209 39 06 30 40 20	Mon. 481-34 Mon. 482	81.38 73.90	Mon. 482-30	45 14 51.84 71 11 25.35	279 53 19 98 06 02	Mon. 482-29 Mon. 482-31	36.08 48.64
Mon. 482	45 14 24.08 71 10 50.42	210 40 19 108 45 06	Mon. 481-35 Mon. 482-1	73.90 87.44	Mon. 482-31	45 14 52.06 71 11 27.55	278 06 00 111 44 26	Mon. 482-30 Mon. 482-32	48.64 52.04
Mon. 482-1	45 14 25.00 71 10 54.22	288 45 03 88 15 03	Mon. 482 Mon. 482-2	87.44 54.08	Mon. 482-32	45 14 52.69 71 11 29.77	291 44 24 155 12 19	Mon. 482-31 Mon. 482-33	52.04 69.92
Mon. 482-2	45 14 24.94 71 10 56.70	268 15 01 149 47 21	Mon. 482-1 Mon. 482-3	54.08 29.75	Mon. 482-33	45 14 54.74 71 11 31.11	335 12 18 173 47 39	Mon. 482-32 Mon. 482-34	69.92 48.64
Mon. 482-3	45 14 25.78 71 10 57.38	329 47 21 131 47 41	Mon. 482-2 Mon. 482-4	29.75 38.11	Mon. 482-34	45 14 56.31 71 11 31.36	353 47 39 201 21 11	Mon. 482-33 Mon. 482-35	48.64 61.62
Mon. 482-4	45 14 26.60 71 10 58.68	311 47 40 187 05 55	Mon. 482-3 Mon. 482-5	38.11 79.40	Mon. 482-35	45 14 58.17 71 11 30.33	21 21 12 138 45 17	Mon. 482-34 Mon. 482-36	61.62 21.50
Mon. 482-5	45 14 29.15 71 10 58.23	7 05 55 133 11 15	Mon. 482-4 Mon. 482-6	79.40 37.91	Mon. 482-36	45 14 58.69 71 11 30.98	318 45 17 106 27 38	Mon. 482-35 Mon. 482-37	21.50 137.93
Mon. 482-6	45 14 29.99 71 10 59.50	313 11 14 185 39 14	Mon. 482-5 Mon. 482-7	37.91 45.60	Mon. 482-37	45 14 59.96 71 11 37.04	286 27 34 88 32 10	Mon. 482-36 Mon. 482-38	137.93 26.21
Mon. 482-7	45 14 31.46 71 10 59.30	5 39 14 161 22 14	Mon. 482-6 Mon. 482-8	45.60 22.18	Mon. 482-38	45 14 59.94 71 11 38.24	268 32 09 152 39 27	Mon. 482-37 Mon. 482-39	26.21 53.99
Mon. 482-8	45 14 32.14 71 10 59.62	341 22 14 199 51 31	Mon. 482-7 Mon. 482-9	22.18 38.48	Mon. 482-39	45 15 01.49 71 11 39.38	332 39 26 130 14 49	Mon. 482-38 Mon. 482-40	53.99 53.75
Mon. 482-9	45 14 33.32 71 10 59.02	19 51 31 149 28 06	Mon. 482-8 Mon. 482-10	38.48 124.10	Mon. 482-40	45 15 02.62 71 11 41.26	310 14 48 134 08 59	Mon. 482-39 Mon. 482-41	53.75 100.11
Mon. 482-10	45 14 36.78 71 11 01.91	329 28 04 104 00 13	Mon. 482-9 Mon. 482-11	124.10 54.97	Mon. 482-41	45 15 04.88 71 11 44.56	314 08 57 197 43 44	Mon. 482-40 Mon. 482-42	100.11 69.87
Mon. 482-11	45 14 37.21 71 11 04.36	284 00 11 162 13 25	Mon. 482-10 Mon. 482-12	54.97 25.51	Mon. 482-42	45 15 07.03 71 11 43.58	17 43 44 156 46 43	Mon. 482-41 Mon. 483	69.87 118.05
Mon. 482-12	45 14 38.00 71 11 04.72	342 13 25 196 37 36	Mon. 482-11 Mon. 482-13	25.51 32.41	Mon. 483	45 15 10.55 71 11 45.71	336 46 42 122 14 02	Mon. 482-42 Mon. 483-1	118.05 60.96
Mon. 482-13	45 14 39.00 71 11 04.29	16 37 36 173 49 04	Mon. 482-12 Mon. 482-14	32.41 38.43	Mon. 483-1	45 15 11.60 71 11 48.08	302 14 00 199 14 20	Mon. 483 Mon. 483-2	60.96 32.87
Mon. 482-14	45 14 40.24 71 11 04.48	353 49 04 183 09 08	Mon. 482-13 Mon. 482-15	38.43 57.80	Mon. 483-2	45 15 12.60 71 11 47.58	19 14 20 163 56 52	Mon. 483-1 Mon. 483-3	32.87 45.32
Mon. 482-15	45 14 42.11 71 11 04.34	3 09 08 81 03 38	Mon. 482-14 Mon. 482-16	57.80 43.96	Mon. 483-3	45 15 14.02 71 11 48.16	343 56 52 168 25 41	Mon. 483-2 Mon. 483-4	45.32 19.10
Mon. 482-16	45 14 41.89 71 11 06.33	261 03 37 122 22 35	Mon. 482-15 Mon. 482-17	43.96 40.55	Mon. 483-4	45 15 14.62 71 11 48.33	348 25 41 114 12 26	Mon. 483-3 Mon. 483-5	19.10 20.91
Mon. 482-17	45 14 42.59 71 11 07.90	302 22 34 21 56 04	Mon. 482-16 Mon. 482-18	40.55 90.81	Mon. 483-5	45 15 14.90 71 11 49.21	294 12 25 102 58 05	Mon. 483-4 Mon. 483-6	20.91 57.43
Mon. 482-18	45 14 39.86 71 11 09.45	201 56 03 79 03 57	Mon. 482-17 Mon. 482-19	90.81 53.27	Mon. 483-6	45 15 15.32 71 11 51.77	282 58 04 25 52 05	Mon. 483-5 Mon. 483-7	57.43 31.48
Mon. 482-19	45 14 39.54 71 11 11.85	259 03 55 105 09 33	Mon. 482-18 Mon. 482-20	53.27 67.79	Mon. 483-7	45 15 14.40 71 11 52.40	205 52 04 93 18 47	Mon. 483-6 Mon. 483-8	31.48 31.72

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 483-8	45 15 14.46 71 11 53.86	273 18 46 121 40 22	Mon. 483-7 Mon. 483-9	31.72 34.09	Mon. 484-14	45 15 01.57 71 12 46.33	292 06 35 47 18 30	Mon. 484-13 Mon. 484-15	55.38 38.04
Mon. 483-9	45 15 15.04 71 11 55.19	301 40 21 113 03 42	Mon. 483-8 Mon. 483-10	34.09 46.65	Mon. 484-15	45 15 00.74 71 12 47.61	227 18 29 125 50 39	Mon. 484-14 Mon. 484-16	38.04 104.72
Mon. 483-10	45 15 15.63 71 11 57.15	293 03 41 30 41 36	Mon. 483-9 Mon. 483-11	46.65 41.48	Mon. 484-16	45 15 02.72 71 12 51.50	305 50 36 92 55 17	Mon. 484-15 Mon. 484-17	104.72 43.38
Mon. 483-11	45 15 14.48 71 11 58.12	210 41 35 33 31 35	Mon. 483-10 Mon. 483-12	41.48 46.67	Mon. 484-17	45 15 02.79 71 12 53.49	272 55 16 60 16 31	Mon. 484-16 Mon. 484-18	43.38 61.15
Mon. 483-12	45 15 13.22 71 11 59.31	213 31 34 91 03 13	Mon. 483-11 Mon. 483-13	46.67 34.97	Mon. 484-18	45 15 01.81 71 12 55.92	240 16 29 90 15 54	Mon. 484-17 Mon. 484-19	61.15 158.07
Mon. 483-13	45 15 13.24 71 12 00.91	271 03 12 36 26 48	Mon. 483-12 Mon. 483-14	34.97 42.55	Mon. 484-19	45 15 01.84 71 13 03.17	270 15 49 139 24 40	Mon. 484-18 Mon. 484-20	158.07 65.69
Mon. 483-14	45 15 12.13 71 12 02.07	216 26 47 107 04 43	Mon. 483-13 Mon. 483-15	42.55 25.93	Mon. 484-20	45 15 03.45 71 13 05.13	319 24 39 156 04 06	Mon. 484-19 Mon. 484-21	65.69 27.76
Mon. 483-15	45 15 12.37 71 12 03.21	287 04 43 142 05 07	Mon. 483-14 Mon. 483-16	25.93 37.44	Mon. 484-21	45 15 04.27 71 13 05.64	336 04 06 76 32 31	Mon. 484-20 Mon. 484-22	27.76 34.18
Mon. 483-16	45 15 13.33 71 12 04.26	322 05 06 162 44 15	Mon. 483-15 Mon. 483-17	37.44 48.40	Mon. 484-22	45 15 04.02 71 13 07.17	256 32 30 34 10 14	Mon. 484-21 Mon. 484-23	34.18 48.28
Mon. 483-17	45 15 14.83 71 12 04.92	342 44 15 98 52 47	Mon. 483-16 Mon. 483-18	48.40 53.13	Mon. 484-23	45 15 02.72 71 13 08.41	214 10 13 30 23 47	Mon. 484-22 Mon. 484-24	48.28 21.31
Mon. 483-18	45 15 15.09 71 12 07.33	278 52 45 114 53 12	Mon. 483-17 Mon. 483-19	53.13 44.89	Mon. 484-24	45 15 02.12 71 13 08.91	210 23 47 97 29 13	Mon. 484-23 Mon. 484-25	21.31 73.05
Mon. 483-19	45 15 15.71 71 12 09.19	294 53 11 96 57 08	Mon. 483-18 Mon. 483-20	44.89 41.30	Mon. 484-25	45 15 02.43 71 13 12.23	277 29 11 100 07 35	Mon. 484-24 Mon. 484-26	73.05 90.34
Mon. 483-20	45 15 15.87 71 12 11.07	276 57 07 38 43 18	Mon. 483-19 Mon. 483-21	41.30 49.47	Mon. 484-26	45 15 02.95 71 13 16.30	280 07 32 185 38 30	Mon. 484-25 Mon. 484-27	90.34 64.89
Mon. 483-21	45 15 14.62 71 12 12.49	218 43 17 53 24 12	Mon. 483-20 Mon. 483-22	49.47 87.08	Mon. 484-27	45 15 05.04 71 13 16.01	5 38 30 163 01 22	Mon. 484-26 Mon. 484-28	64.89 72.51
Mon. 483-22	45 15 12.94 71 12 15.70	233 24 09 10 59 07	Mon. 483-21 Mon. 483-23	87.08 42.25	Mon. 484-28	45 15 07.29 71 13 16.98	343 01 21 117 34 06	Mon. 484-27 Mon. 484-29	72.51 65.49
Mon. 483-23	45 15 11.59 71 12 16.07	190 59 07 75 01 29	Mon. 483-22 Mon. 483-24	42.25 61.26	Mon. 484-29	45 15 08.27 71 13 19.65	297 34 04 187 44 40	Mon. 484-28 Mon. 484-30	65.49 93.64
Mon. 483-24	45 15 11.08 71 12 18.78	255 01 27 37 39 31	Mon. 483-23 Mon. 484	61.26 25.59	Mon. 484-30	45 15 11.28 71 13 19.07	7 44 40 122 13 30	Mon. 484-29 Mon. 484-31	93.64 65.81
Mon. 484	45 15 10.42 71 12 19.50	217 39 30 37 39 00	Mon. 483-24 Mon. 484-1	25.59 55.62	Mon. 484-31	45 15 12.41 71 13 21.62	302 13 28 37 33 32	Mon. 484-30 Mon. 484-32	65.81 104.69
Mon. 484-1	45 15 09.00 71 12 21.06	217 38 59 117 52 36	Mon. 484 Mon. 484-2	55.62 95.08	Mon. 484-32	45 15 09.72 71 13 24.55	217 33 30 53 22 52	Mon. 484-31 Mon. 484-33	104.69 75.19
Mon. 484-2	45 15 10.44 71 12 24.91	297 52 33 101 58 12	Mon. 484-1 Mon. 484-3	95.08 45.35	Mon. 484-33	45 15 08.27 71 13 27.32	233 22 50 78 22 04	Mon. 484-32 Mon. 484-34	75.19 54.52
Mon. 484-3	45 15 10.74 71 12 26.95	281 58 11 130 23 06	Mon. 484-2 Mon. 484-4	45.35 27.97	Mon. 484-34	45 15 07.92 71 13 29.77	258 22 02 44 52 28	Mon. 484-33 Mon. 484-35	54.52 56.39
Mon. 484-4	45 15 11.33 71 12 27.92	310 23 05 26 46 43	Mon. 484-3 Mon. 484-5	27.97 92.93	Mon. 484-35	45 15 06.62 71 13 31.59	224 52 27 80 28 14	Mon. 484-34 Mon. 484-36	56.39 22.83
Mon. 484-5	45 15 08.64 71 12 29.84	206 46 42 51 39 47	Mon. 484-4 Mon. 484-6	92.93 32.41	Mon. 484-36	45 15 06.50 71 13 32.62	260 28 13 52 27 21	Mon. 484-35 Mon. 484-37	22.83 46.34
Mon. 484-6	45 15 07.99 71 12 31.01	231 39 46 15 27 58	Mon. 484-5 Mon. 484-7	32.41 95.25	Mon. 484-37	45 15 05.58 71 13 34.31	232 27 20 65 40 24	Mon. 484-36 Mon. 484-38	46.34 50.45
Mon. 484-7	45 15 05.02 71 12 32.18	195 27 57 64 45 36	Mon. 484-6 Mon. 484-8	95.25 53.96	Mon. 484-38	45 15 04.91 71 13 36.42	245 40 22 19 05 51	Mon. 484-37 Mon. 484-39	50.45 44.19
Mon. 484-8	45 15 04.27 71 12 34.41	244 45 34 42 02 18	Mon. 484-7 Mon. 484-9	53.96 75.16	Mon. 484-39	45 15 03.56 71 13 37.08	199 05 51 39 47 11	Mon. 484-38 Mon. 484-40	44.19 49.05
Mon. 484-9	45 15 02.46 71 12 36.72	222 02 16 98 12 41	Mon. 484-8 Mon. 484-10	75.16 75.31	Mon. 484-40	45 15 02.34 71 13 38.52	219 47 10 10 05 13	Mon. 484-39 Mon. 484-41	49.05 28.96
Mon. 484-10	45 15 02.81 71 12 40.14	278 12 39 49 32 24	Mon. 484-9 Mon. 484-11	75.31 28.84	Mon. 484-41	45 15 01.41 71 13 38.75	190 05 13 44 23 19	Mon. 484-40 Mon. 484-42	28.96 38.68
Mon. 484-11	45 15 02.20 71 12 41.14	229 32 23 30 28 16	Mon. 484-10 Mon. 484-12	28.84 40.37	Mon. 484-42	45 15 00.52 71 13 39.99	224 23 18 60 22 20	Mon. 484-41 Mon. 484-43	38.68 63.90
Mon. 484-12	45 15 01.08 71 12 42.08	210 28 15 82 10 53	Mon. 484-11 Mon. 484-13	40.37 41.57	Mon. 484-43	45 14 59.50 71 13 42.54	240 22 18 31 55 41	Mon. 484-42 Mon. 484-44	63.90 51.76
Mon. 484-13	45 15 00.90 71 12 43.97	262 10 52 112 06 37	Mon. 484-12 Mon. 484-14	41.57 55.38	Mon. 484-44	45 14 58.07 71 13 43.79	211 55 40 106 00 35	Mon. 484-43 Mon. 484-45	51.76 59.41



## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 484-45	45 14 58.60 71 13 46.41	286 00 33 44 09 39	Mon. 484-44 Mon. 484-46	59.41 50.87	Mon. 485-3	45 15 51.90 71 14 28.59	312 56 34 130 15 58	Mon. 485-2 Mon. 485-4	162.50 105.47
Mon. 484-46	45 14 57.42 71 13 48.04	224 09 38 94 23 37	Mon. 484-45 Mon. 484-47	50.87 43.29	Mon. 485-4	45 15 54.10 71 14 32.29	310 15 55 145 13 01	Mon. 485-3 Mon. 485-5	105.47 212.54
Mon. 484-47	45 14 57.53 71 13 50.02	274 23 36 113 06 03	Mon. 484-46 Mon. 484-48	43.29 53.29	Mon. 485-5	45 15 59.76 71 14 37.85	325 12 57 150 16 47	Mon. 485-4 Mon. 485-6	212.54 104.04
Mon. 484-48	45 14 58.21 71 13 52.26	293 06 01 140 58 39	Mon. 484-47 Mon. 484-49	53.29 66.31	Mon. 485-6	45 16 02.69 71 14 40.21	330 16 46 141 05 35	Mon. 485-5 Mon. 486	104.04 122.95
Mon. 484-49	45 14 59.88 71 13 54.18	320 58 38 158 08 17	Mon. 484-48 Mon. 484-50	66.31 101.93	Mon. 486	45 16 05.79 71 14 43.76	321 05 33 141 04 51	Mon. 485-6 Mon. 486-1	122.95 87.24
Mon. 484-50	45 15 02.94 71 13 55.92	338 08 16 147 08 02	Mon. 484-49 Mon. 484-51	101.93 32.03	Mon. 486-1	45 16 07.98 71 14 46.27	321 04 49 72 58 01	Mon. 486 Mon. 486-2	87.24 110.97
Mon. 484-51	45 15 03.81 71 13 56.72	327 08 01 92 05 13	Mon. 484-50 Mon. 484-52	32.03 67.63	Mon. 486-2	45 16 06.93 71 14 51.14	252 57 58 112 40 43	Mon. 486-1 Mon. 486-3	110.97 41.00
Mon. 484-52	45 15 03.89 71 13 59.82	272 05 11 151 50 17	Mon. 484-51 Mon. 484-53	67.63 66.40	Mon. 486-3	45 16 07.44 71 14 52.87	292 40 42 52 09 47	Mon. 486-2 Mon. 486-4	41.00 57.95
Mon. 484-53	45 15 05.79 71 14 01.25	331 50 16 198 17 14	Mon. 484-52 Mon. 484-54	66.40 24.58	Mon. 486-4	45 16 06.29 71 14 54.97	232 09 46 37 28 56	Mon. 486-3 Mon. 486-5	57.95 49.02
Mon. 484-54	45 15 06.54 71 14 00.90	18 17 14 238 43 38	Mon. 484-53 Mon. 484-55	24.58 39.29	Mon. 486-5	45 16 05.03 71 14 56.34	217 28 55 61 22 58	Mon. 486-4 Mon. 486-6	49.02 32.99
Mon. 484-55	45 15 07.20 71 13 59.36	58 43 39 209 46 40	Mon. 484-54 Mon. 484-56	39.29 85.30	Mon. 486-6	45 16 04.52 71 14 57.67	241 22 57 110 32 27	Mon. 486-5 Mon. 486-7	32.99 57.95
Mon. 484-56	45 15 09.60 71 13 57.42	29 46 41 200 54 26	Mon. 484-55 Mon. 484-57	85.30 157.29	Mon. 486-7	45 16 05.18 71 15 00.16	290 32 25 158 20 08	Mon. 486-6 Mon. 486-8	57.95 77.38
Mon. 484-57	45 15 14.36 71 13 54.84	20 54 28 142 02 55	Mon. 484-56 Mon. 484-58	157.29 109.55	Mon. 486-8	45 16 07.51 71 15 01.47	338 20 07 189 07 04	Mon. 486-7 Mon. 486-9	77.38 45.26
Mon. 484-58	45 15 17.16 71 13 57.93	322 02 53 160 51 57	Mon. 484-57 Mon. 484-59	109.55 73.68	Mon. 486-9	45 16 08.96 71 15 01.14	9 07 04 115 13 51	Mon. 486-8 Mon. 486-10	45.26 32.68
Mon. 484-59	45 15 19.42 71 13 59.04	340 51 56 172 26 41	Mon. 484-58 Mon. 484-60	73.68 108.18	Mon. 486-10	45 16 09.41 71 15 02.49	295 13 50 163 28 20	Mon. 486-9 Mon. 486-11	32.68 49.88
Mon. 484-60	45 15 22.89 71 13 59.69	352 26 41 178 28 13	Mon. 484-59 Mon. 484-61	108.18 73.48	Mon. 486-11	45 16 10.96 71 15 03.14	343 28 20 112 49 01	Mon. 486-10 Mon. 486-12	49.88 62.58
Mon. 484-61	45 15 25.27 71 13 59.78	358 28 13 150 41 08	Mon. 484-60 Mon. 484-62	73.48 81.07	Mon. 486-12	45 16 11.74 71 15 05.79	292 48 59 95 56 25	Mon. 486-11 Mon. 486-13	62.58 32.99
Mon. 484-62	45 15 27.56 71 14 01.60	330 41 07 116 02 17	Mon. 484-61 Mon. 484-63	81.07 53.52	Mon. 486-13	45 16 11.85 71 15 07.30	275 56 25 158 46 36	Mon. 486-12 Mon. 486-14	32.99 45.32
Mon. 484-63	45 15 28.32 71 14 03.81	296 02 15 158 57 22	Mon. 484-62 Mon. 484-64	53.52 60.84	Mon. 486-14	45 16 13.22 71 15 08.05	338 46 35 119 14 00	Mon. 486-13 Mon. 486-15	45.32 61.66
Mon. 484-64	45 15 30.16 71 14 04.81	338 57 21 141 24 12	Mon. 484-63 Mon. 484-65	60.84 54.37	Mon. 486-15	45 16 14.20 71 15 10.52	299 13 58 136 21 23	Mon. 486-14 Mon. 486-16	61.66 82.31
Mon. 484-65	45 15 31.54 71 14 06.37	321 24 11 149 33 47	Mon. 484-64 Mon. 484-66	54.37 67.19	Mon. 486-16	45 16 16.12 71 15 13.12	316 21 21 123 01 00	Mon. 486-15 Mon. 486-17	82.31 115.91
Mon. 484-66	45 15 33.41 71 14 07.93	329 33 46 182 37 05	Mon. 484-65 Mon. 484-67	67.19 44.49	Mon. 486-17	45 16 18.17 71 15 17.58	303 00 57 113 43 32	Mon. 486-16 Mon. 486-18	115.91 94.95
Mon. 484-67	45 15 34.85 71 14 07.83	2 37 05 160 38 55	Mon. 484-66 Mon. 484-68	44.49 154.52	Mon. 486-18	45 16 19.41 71 15 21.57	293 43 29 149 08 44	Mon. 486-17 Mon. 486-19	94.95 25.59
Mon. 484-68	45 15 39.57 71 14 10.18	340 38 53 128 45 13	Mon. 484-67 Mon. 484-69	154.52 39.50	Mon. 486-19	45 16 20.12 71 15 22.17	329 08 44 161 07 41	Mon. 486-18 Mon. 486-20	25.59 94.83
Mon. 484-69	45 15 40.37 71 14 11.60	308 45 12 108 11 05	Mon. 484-68 Mon. 484-70	39.50 82.77	Mon. 486-20	45 16 23.03 71 15 23.58	341 07 40 126 06 17	Mon. 486-19 Mon. 486-21	94.83 42.22
Mon. 484-70	45 15 41.21 71 14 15.20	288 11 02 95 56 56	Mon. 484-69 Mon. 484-71	82.77 77.75	Mon. 486-21	45 16 23.83 71 15 25.14	306 06 16 45 52 34	Mon. 486-20 Mon. 486-22	42.22 51.48
Mon. 484-71	45 15 41.47 71 14 18.75	275 56 54 102 47 54	Mon. 484-70 Mon. 484-72	77.75 116.77	Mon. 486-22	45 16 22.67 71 15 26.84	225 52 33 64 32 21	Mon. 486-21 Mon. 486-23	51.48 36.07
Mon. 484-72	45 15 42.31 71 14 23.97	282 47 51 188 21 26	Mon. 484-71 Mon. 485	116.77 5.18	Mon. 486-23	45 16 22.17 71 15 28.33	244 32 20 50 47 23	Mon. 486-22 Mon. 486-24	36.07 148.59
Mon. 485	45 15 42.47 71 14 23.94	8 21 26 188 14 24	Mon. 484-72 Mon. 485-1	5.18 89.80	Mon. 486-24	45 16 19.13 71 15 33.61	230 47 19 81 18 29	Mon. 486-23 Mon. 486-25	148.59 21.89
Mon. 485-1	45 15 45.35 71 14 23.35	8 14 24 182 52 55	Mon. 485 Mon. 485-2	89.80 91.37	Mon. 486-25	45 16 19.02 71 15 34.61	261 18 28 124 16 51	Mon. 486-24 Mon. 486-26	21.89 34.22
Mon. 485-2	45 15 48.31 71 14 23.14	2 52 55 132 56 38	Mon. 485-1 Mon. 485-3	91.37 162.50	Mon. 486-26	45 16 19.64 71 15 35.90	304 16 50 164 54 26	Mon. 486-25 Mon. 486-27	34.22 41.62

BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 486-27	45 16 20.94 71 15 36.40	344 54 26 206 25 23	Mon. 486-26 Mon. 486-28	41.62 49.32	Mon. 487-3	45 17 14.96 71 15 55.39	315 05 25 167 02 43	Mon. 487-2 Mon. 487-4	27.51 129.67
Mon. 486-28	45 16 22.38 71 15 35.39	26 25 24 155 56 45	Mon. 486-27 Mon. 486-29	49.32 45.01	Mon. 487-4	45 17 19.06 71 15 56.72	347 02 42 149 21 05	Mon. 487-3 Mon. 487-5	129.67 112.61
Mon. 486-29	45 16 23.71 71 15 36.24	335 56 44 155 56 44	Mon. 486-28 Mon. 486-30	45.01 36.07	Mon. 487-5	45 17 22.20 71 15 59.36	329 21 03 185 10 56	Mon. 487-4 Mon. 487-6	112.61 121.80
Mon. 486-30	45 16 24.77 71 15 36.91	335 56 44 162 58 21	Mon. 486-29 Mon. 486-31	36.07 54.87	Mon. 487-6	45 17 26.12 71 15 58.85	5 10 56 163 18 24	Mon. 487-5 Mon. 487-7	121.80 108.96
Mon. 486-31	45 16 26.47 71 15 37.65	342 58 20 195 20 31	Mon. 486-30 Mon. 486-32	54.87 74.23	Mon. 487-7	45 17 29.51 71 16 00.29	343 18 23 205 28 27	Mon. 487-6 Mon. 487-8	108.96 64.49
Mon. 486-32	45 16 28.79 71 15 36.75	15 20 32 118 34 27	Mon. 486-31 Mon. 486-33	74.23 65.06	Mon. 487-8	45 17 31.39 71 15 59.02	25 28 28 203 38 50	Mon. 487-7 Mon. 487-9	64.49 34.55
Mon. 486-33	45 16 29.80 71 15 39.37	298 34 25 147 21 58	Mon. 486-32 Mon. 486-34	65.06 58.57	Mon. 487-9	45 17 32.42 71 15 58.38	23 38 50 220 54 18	Mon. 487-8 Mon. 487-10	34.55 143.94
Mon. 486-34	45 16 31.40 71 15 40.82	327 21 57 126 27 42	Mon. 486-33 Mon. 486-35	58.57 110.67	Mon. 487-10	45 17 35.94 71 15 54.05	40 54 21 147 39 50	Mon. 487-9 Mon. 487-11	143.94 73.90
Mon. 486-35	45 16 33.53 71 15 44.90	306 27 39 110 52 11	Mon. 486-34 Mon. 486-36	110.67 34.01	Mon. 487-11	45 17 37.96 71 15 55.87	327 39 49 116 43 17	Mon. 487-10 Mon. 487-12	73.90 49.81
Mon. 486-36	45 16 33.92 71 15 46.36	290 52 10 186 19 31	Mon. 486-35 Mon. 486-37	34.01 64.85	Mon. 487-12	45 17 38.69 71 15 57.91	296 43 15 125 01 48	Mon. 487-11 Mon. 487-13	49.81 74.82
Mon. 486-37	45 16 36.01 71 15 46.03	6 19 31 149 10 21	Mon. 486-36 Mon. 486-38	64.85 35.45	Mon. 487-13	45 17 40.08 71 16 00.72	305 01 46 93 52 09	Mon. 487-12 Mon. 487-14	74.82 56.54
Mon. 486-38	45 16 37.00 71 15 46.86	329 10 20 146 56 11	Mon. 486-37 Mon. 486-39	35.45 77.54	Mon. 487-14	45 17 40.20 71 16 03.31	273 52 07 120 18 25	Mon. 487-13 Mon. 487-15	56.54 54.62
Mon. 486-39	45 16 39.10 71 15 48.80	326 56 10 188 07 53	Mon. 486-38 Mon. 486-40	77.54 79.14	Mon. 487-15	45 17 41.10 71 16 05.48	300 18 24 117 52 17	Mon. 487-14 Mon. 487-16	54.62 57.44
Mon. 486-40	45 16 41.64 71 15 48.29	8 07 53 175 05 20	Mon. 486-39 Mon. 486-41	79.14 65.91	Mon. 487-16	45 17 41.97 71 16 07.80	297 52 16 125 35 44	Mon. 487-15 Mon. 487-17	57.44 70.86
Mon. 486-41	45 16 43.76 71 15 48.55	355 05 20 196 27 24	Mon. 486-40 Mon. 486-42	65.91 49.95	Mon. 487-17	45 17 43.30 71 16 10.45	305 35 42 94 54 15	Mon. 487-16 Mon. 487-18	70.86 80.66
Mon. 486-42	45 16 45.32 71 15 47.90	16 27 24 171 01 29	Mon. 486-41 Mon. 486-43	49.95 34.84	Mon. 487-18	45 17 43.53 71 16 14.14	274 54 13 128 57 42	Mon. 487-17 Mon. 487-19	80.66 33.31
Mon. 486-43	45 16 46.43 71 15 48.15	351 01 29 147 10 01	Mon. 486-42 Mon. 486-44	34.84 54.31	Mon. 487-19	45 17 44.20 71 16 15.33	308 57 41 118 05 04	Mon. 487-18 Mon. 487-20	33.31 74.22
Mon. 486-44	45 16 47.91 71 15 49.50	327 10 00 143 16 30	Mon. 486-43 Mon. 486-45	54.31 44.97	Mon. 487-20	45 17 45.34 71 16 18.33	298 05 02 108 38 30	Mon. 487-19 Mon. 487-21	74.22 64.77
Mon. 486-45	45 16 49.08 71 15 50.73	323 16 29 185 32 05	Mon. 486-44 Mon. 486-46	44.97 189.35	Mon. 487-21	45 17 46.01 71 16 21.15	288 38 28 137 06 56	Mon. 487-20 Mon. 487-22	64.77 82.73
Mon. 486-46	45 16 55.18 71 15 49.90	5 32 06 142 51 13	Mon. 486-45 Mon. 486-47	189.35 56.72	Mon. 487-22	45 17 47.97 71 16 23.73	317 06 55 60 30 34	Mon. 487-21 Mon. 488	82.73 2.45
Mon. 486-47	45 16 56.65 71 15 51.47	322 51 12 165 56 25	Mon. 486-46 Mon. 486-48	56.72 65.86	Mon. 488	45 17 47.93 71 16 23.83	240 30 34 60 12 20	Mon. 487-22 Mon. 488-1	2.45 101.92
Mon. 486-48	45 16 58.72 71 15 52.20	345 56 25 183 42 40	Mon. 486-47 Mon. 486-49	65.86 77.55	Mon. 488-1	45 17 46.29 71 16 27.89	240 12 17 39 28 50	Mon. 488 Mon. 488-2	101.92 47.46
Mon. 486-49	45 17 01.22 71 15 51.97	3 42 40 179 53 05	Mon. 486-48 Mon. 486-50	77.55 104.35	Mon. 488-2	45 17 45.10 71 16 29.28	219 28 49 78 01 42	Mon. 488-1 Mon. 488-3	47.46 48.37
Mon. 486-50	45 17 04.60 71 15 51.98	359 53 05 196 35 25	Mon. 486-49 Mon. 486-51	104.35 30.83	Mon. 488-3	45 17 44.78 71 16 31.45	258 01 40 46 11 34	Mon. 488-2 Mon. 488-4	48.37 102.57
Mon. 486-51	45 17 05.56 71 15 51.58	16 35 25 154 55 11	Mon. 486-50 Mon. 486-52	30.83 43.16	Mon. 488-4	45 17 42.48 71 16 34.84	226 11 32 73 43 09	Mon. 488-3 Mon. 488-5	102.57 76.37
Mon. 486-52	45 17 06.82 71 15 52.42	334 55 10 183 52 00	Mon. 486-51 Mon. 486-53	43.16 38.78	Mon. 488-5	45 17 41.78 71 16 38.21	253 43 07 112 10 17	Mon. 488-4 Mon. 488-6	76.37 51.44
Mon. 486-53	45 17 08.08 71 15 52.30	3 52 00 167 05 30	Mon. 486-52 Mon. 486-54	38.78 115.45	Mon. 488-6	45 17 42.41 71 16 40.39	292 10 15 77 38 45	Mon. 488-5 Mon. 488-7	51.44 45.75
Mon. 486-54	45 17 11.72 71 15 53.48	347 05 29 150 14 44	Mon. 486-53 Mon. 487	115.45 14.16	Mon. 488-7	45 17 42.10 71 16 42.44	257 38 44 47 38 28	Mon. 488-6 Mon. 488-8	45.75 46.07
Mon. 487	45 17 12.12 71 15 53.80	330 14 44 150 12 19	Mon. 486-54 Mon. 487-1	14.16 29.34	Mon. 488-8	45 17 41.09 71 16 44.01	227 38 27 72 30 30	Mon. 488-7 Mon. 488-9	46.07 65.14
Mon. 487-1	45 17 12.95 71 15 54.47	330 12 19 179 15 47	Mon. 487 Mon. 487-2	29.34 42.79	Mon. 488-9	45 17 40.46 71 16 46.86	252 30 28 95 45 49	Mon. 488-8 Mon. 488-10	65.14 110.54
Mon. 487-2	45 17 14.33 71 15 54.50	359 15 47 135 05 26	Mon. 487-1 Mon. 487-3	42.79 27.51	Mon. 488-10	45 17 40.82 71 16 51.90	275 45 45 155 02 46	Mon. 488-9 Mon. 488-11	110.54 70.23

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 488-11.....	45 17 42.88 71 16 53.26	335 02 45 184 45 19	Mon. 488-10..... Mon. 488-12.....	70.23 42.39	Mon. 489-22.....	45 17 52.42 71 17 53.80	196 11 06 44 38 32	Mon. 489-21..... Mon. 489-23.....	28.89 120.42
Mon. 488-12.....	45 17 44.25 71 16 53.10	4 45 19 140 00 45	Mon. 488-11..... Mon. 488-13.....	42.39 32.82	Mon. 489-23.....	45 17 49.64 71 17 57.68	224 38 29 64 13 25	Mon. 489-22..... Mon. 490.....	120.42 6.76
Mon. 488-13.....	45 17 45.06 71 16 54.07	320 00 44 160 23 24	Mon. 488-12..... Mon. 488-14.....	32.82 51.92	Mon. 490.....	45 17 49.55 71 17 57.96	244 13 25 64 14 06	Mon. 489-23..... Mon. 490-1.....	6.76 10.71
Mon. 488-14.....	45 17 46.64 71 16 54.87	340 23 23 133 07 30	Mon. 488-13..... Mon. 488-15.....	51.92 147.03	Mon. 490-1.....	45 17 49.40 71 17 58.40	244 14 06 79 22 36	Mon. 490..... Mon. 490-2.....	10.71 42.06
Mon. 488-15.....	45 17 49.90 71 16 59.80	313 07 26 205 48 53	Mon. 488-14..... Mon. 488-16.....	147.03 101.00	Mon. 490-2.....	45 17 49.15 71 18 00.30	259 22 35 36 25 35	Mon. 490-1..... Mon. 490-3.....	42.06 72.78
Mon. 488-16.....	45 17 52.85 71 16 57.78	25 48 54 178 14 50	Mon. 488-15..... Mon. 488-17.....	101.00 55.48	Mon. 490-3.....	45 17 47.25 71 18 02.29	216 25 34 130 12 04	Mon. 490-2..... Mon. 490-4.....	72.78 47.73
Mon. 488-17.....	45 17 54.64 71 16 57.86	358 14 50 189 15 41	Mon. 488-16..... Mon. 488-18.....	55.48 77.68	Mon. 490-4.....	45 17 48.25 71 18 03.96	310 12 03 35 14 03	Mon. 490-3..... Mon. 490-5.....	47.73 175.74
Mon. 488-18.....	45 17 57.13 71 16 57.28	9 15 41 158 12 08	Mon. 488-17..... Mon. 488-19.....	77.68 46.09	Mon. 490-5.....	45 17 43.60 71 18 08.61	242 14 00 19 36 45	Mon. 490-4..... Mon. 490-6.....	175.74 75.05
Mon. 488-19.....	45 17 58.51 71 16 58.07	338 12 08 117 54 50	Mon. 488-18..... Mon. 489.....	46.09 52.37	Mon. 490-6.....	45 17 41.31 71 18 09.77	199 36 44 25 52 59	Mon. 490-5..... Mon. 490-7.....	75.05 99.67
Mon. 489.....	45 17 59.31 71 17 00.19	297 54 49 117 53 28	Mon. 488-19..... Mon. 489-1.....	52.37 68.59	Mon. 490-7.....	45 17 38.40 71 18 11.77	205 52 58 13 34 28	Mon. 490-6..... Mon. 490-8.....	99.67 107.61
Mon. 489-1.....	45 18 00.35 71 17 02.97	297 53 26 164 10 49	Mon. 489..... Mon. 489-2.....	68.59 34.97	Mon. 490-8.....	45 17 35.01 71 18 12.92	193 34 27 62 24 27	Mon. 490-7..... Mon. 490-9.....	107.61 129.97
Mon. 489-2.....	45 18 01.44 71 17 03.41	344 10 49 216 07 02	Mon. 489-1..... Mon. 489-3.....	34.97 83.92	Mon. 490-9.....	45 17 33.06 71 18 18.21	242 24 23 21 46 38	Mon. 490-8..... Mon. 490-10.....	129.97 95.16
Mon. 489-3.....	45 18 03.63 71 17 01.14	36 07 04 159 05 17	Mon. 489-2..... Mon. 489-4.....	83.92 120.35	Mon. 490-10.....	45 17 30.20 71 18 19.83	201 46 37 32 34 37	Mon. 490-9..... Mon. 490-11.....	95.16 214.82
Mon. 489-4.....	45 18 07.27 71 17 03.11	339 05 16 135 15 19	Mon. 489-3..... Mon. 489-5.....	120.35 66.55	Mon. 490-11.....	45 17 24.34 71 18 25.14	212 34 33 352 43 03	Mon. 490-10..... Mon. 490-12.....	214.82 54.43
Mon. 489-5.....	45 18 08.80 71 17 05.26	315 15 17 20 13 55	Mon. 489-4..... Mon. 489-6.....	66.55 127.69	Mon. 490-12.....	45 17 22.59 71 18 24.82	172 43 03 19 52 03	Mon. 490-11..... Mon. 490-13.....	54.43 155.11
Mon. 489-6.....	45 18 09.92 71 17 07.29	200 13 53 35 01 42	Mon. 489-5..... Mon. 489-7.....	127.69 86.92	Mon. 490-13.....	45 17 17.86 71 18 27.24	199 52 01 30 17 46	Mon. 490-12..... Mon. 490-14.....	155.11 93.26
Mon. 489-7.....	45 18 02.62 71 17 09.58	215 01 40 43 13 21	Mon. 489-6..... Mon. 489-8.....	86.92 42.40	Mon. 490-14.....	45 17 15.26 71 18 29.40	210 17 44 69 39 29	Mon. 490-13..... Mon. 490-15.....	93.26 94.21
Mon. 489-8.....	45 18 01.62 71 17 10.91	223 13 20 115 10 25	Mon. 489-7..... Mon. 489-9.....	42.40 106.05	Mon. 490-15.....	45 17 14.19 71 18 33.45	249 39 26 42 46 26	Mon. 490-14..... Mon. 490-16.....	94.21 35.00
Mon. 489-9.....	45 18 03.08 71 17 15.32	295 10 22 102 21 48	Mon. 489-8..... Mon. 489-10.....	106.05 72.07	Mon. 490-16.....	45 17 13.36 71 18 34.54	222 46 25 86 14 20	Mon. 490-15..... Mon. 491.....	35.00 79.54
Mon. 489-10.....	45 18 03.58 71 17 18.55	282 21 46 35 22 26	Mon. 489-9..... Mon. 489-11.....	72.07 118.75	Mon. 491.....	45 17 13.19 71 18 38.19	266 14 17 86 11 09	Mon. 490-16..... Mon. 491-1.....	79.54 16.72
Mon. 489-11.....	45 18 00.44 71 17 21.70	215 22 24 87 40 44	Mon. 489-10..... Mon. 489-12.....	118.75 85.12	Mon. 491-1.....	45 17 13.16 71 18 38.95	266 11 08 64 02 12	Mon. 491..... Mon. 491-2.....	16.72 91.39
Mon. 489-12.....	45 18 00.33 71 17 25.60	267 40 41 48 38 11	Mon. 489-11..... Mon. 489-13.....	85.12 70.50	Mon. 491-2.....	45 17 11.86 71 18 42.72	244 02 09 107 45 43	Mon. 491-1..... Mon. 491-3.....	91.39 61.23
Mon. 489-13.....	45 17 58.82 71 17 28.03	228 38 09 8 36 54	Mon. 489-12..... Mon. 489-14.....	70.50 64.21	Mon. 491-3.....	45 17 12.46 71 18 45.40	287 45 41 109 50 38	Mon. 491-2..... Mon. 491-4.....	61.23 33.60
Mon. 489-14.....	45 17 56.76 71 17 28.48	188 36 54 34 20 55	Mon. 489-13..... Mon. 489-15.....	64.21 41.02	Mon. 491-4.....	45 17 12.83 71 18 46.85	289 50 37 104 53 10	Mon. 491-3..... Mon. 491-5.....	33.60 41.80
Mon. 489-15.....	45 17 55.67 71 17 29.54	214 20 54 81 34 04	Mon. 489-14..... Mon. 489-16.....	41.02 146.52	Mon. 491-5.....	45 17 13.18 71 18 48.70	284 53 09 73 55 59	Mon. 491-4..... Mon. 491-6.....	41.80 58.58
Mon. 489-16.....	45 17 54.97 71 17 36.19	261 33 59 109 23 20	Mon. 489-15..... Mon. 489-17.....	146.52 47.03	Mon. 491-6.....	45 17 12.66 71 18 51.28	253 55 57 96 00 08	Mon. 491-5..... Mon. 491-7.....	58.58 61.30
Mon. 489-17.....	45 17 55.48 71 17 38.22	289 23 19 79 02 24	Mon. 489-16..... Mon. 489-18.....	47.03 76.12	Mon. 491-7.....	45 17 12.86 71 18 54.08	276 00 06 71 55 15	Mon. 491-6..... Mon. 491-8.....	61.30 81.01
Mon. 489-18.....	45 17 55.01 71 17 41.66	259 02 22 104 42 53	Mon. 489-17..... Mon. 489-19.....	76.12 71.31	Mon. 491-8.....	45 17 12.05 71 18 57.61	251 55 12 24 46 20	Mon. 491-7..... Mon. 491-9.....	81.01 71.92
Mon. 489-19.....	45 17 55.60 71 17 44.82	284 42 51 122 05 02	Mon. 489-18..... Mon. 489-20.....	71.31 94.69	Mon. 491-9.....	45 17 09.94 71 18 59.00	204 46 19 56 25 59	Mon. 491-8..... Mon. 491-10.....	71.92 114.56
Mon. 489-20.....	45 17 57.22 71 17 48.50	302 04 59 41 40 04	Mon. 489-19..... Mon. 489-21.....	94.69 161.46	Mon. 491-10.....	45 17 07.88 71 19 03.38	236 25 56 26 42 04	Mon. 491-9..... Mon. 491-11.....	114.56 62.79
Mon. 489-21.....	45 17 53.32 71 17 53.43	221 40 00 16 11 06	Mon. 489-20..... Mon. 489-22.....	161.46 28.89	Mon. 491-11.....	45 17 06.07 71 19 04.67	206 42 03 42 09 02	Mon. 491-10..... Mon. 491-12.....	62.79 151.81



BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF  
HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 491-12.....	45 17 02.42 71 19 09.35	222 08 59 18 52 40	Mon. 491-11..... Mon. 491-13.....	151.81 110.64	Mon. 494-1.....	45 16 19.57 71 20 53.69	267 17 53 29 55 26	Mon. 494..... Mon. 494-2.....	32.36 159.43
Mon. 491-13.....	45 16 59.03 71 19 10.99	198 52 39 78 56 34	Mon. 491-12..... Mon. 491-14.....	110.64 40.17	Mon. 494-2.....	45 16 15.09 71 20 57.34	209 55 23 42 00 45	Mon. 494-1..... Mon. 494-3.....	159.43 189.76
Mon. 491-14.....	45 16 58.78 71 19 12.80	258 56 33 33 27 16	Mon. 491-13..... Mon. 491-15.....	40.17 87.41	Mon. 494-3.....	45 16 10.53 71 21 03.16	222 00 41 95 31 33	Mon. 494-2..... Mon. 494-4.....	189.76 42.33
Mon. 491-15.....	45 16 56.42 71 19 15.01	213 27 14 50 28 32	Mon. 491-14..... Mon. 491-16.....	87.41 58.15	Mon. 494-4.....	45 16 10.66 71 21 05.09	275 31 32 56 40 26	Mon. 494-3..... Mon. 494-5.....	42.33 170.74
Mon. 491-16.....	45 16 55.22 71 19 17.07	230 28 31 77 27 52	Mon. 491-15..... Mon. 492.....	58.15 88.52	Mon. 494-5.....	45 16 07.62 71 21 11.64	236 40 21 80 40 31	Mon. 494-4..... Mon. 494-6.....	170.74 62.57
Mon. 492.....	45 16 54.59 71 19 21.03	257 27 50 77 26 38	Mon. 491-16..... Mon. 492-1.....	88.52 216.34	Mon. 494-6.....	45 16 07.29 71 21 14.47	260 40 29 89 48 34	Mon. 494-5..... Mon. 494-7.....	62.57 174.84
Mon. 492-1.....	45 16 53.07 71 19 30.72	257 26 31 87 00 06	Mon. 492..... Mon. 492-2.....	216.34 152.35	Mon. 494-7.....	45 16 07.27 71 21 22.49	269 48 28 113 38 58	Mon. 494-6..... Mon. 494-8.....	174.84 238.41
Mon. 492-2.....	45 16 52.81 71 19 37.70	267 00 01 72 17 09	Mon. 492-1..... Mon. 492-3.....	152.35 162.69	Mon. 494-8.....	45 16 10.37 71 21 32.51	293 38 51 128 31 26	Mon. 494-7..... Mon. 494-9.....	238.41 112.88
Mon. 492-3.....	45 16 51.21 71 19 44.81	252 17 04 55 50 51	Mon. 492-2..... Mon. 492-4.....	162.69 54.66	Mon. 494-9.....	45 16 12.65 71 21 36.56	308 31 23 116 10 06	Mon. 494-8..... Mon. 494-10.....	112.88 60.43
Mon. 492-4.....	45 16 50.21 71 19 46.88	235 50 50 76 00 58	Mon. 492-3..... Mon. 492-5.....	54.66 58.22	Mon. 494-10.....	45 16 13.51 71 21 39.05	296 10 04 26 47 43	Mon. 494-9..... Mon. 494-11.....	60.43 59.05
Mon. 492-5.....	45 16 49.76 71 19 49.48	256 00 56 79 40 05	Mon. 492-4..... Mon. 492-6.....	58.22 76.62	Mon. 494-11.....	45 16 11.80 71 21 40.27	206 47 42 9 46 09	Mon. 494-10..... Mon. 494-12.....	59.05 111.37
Mon. 492-6.....	45 16 49.31 71 19 52.94	259 40 02 39 21 48	Mon. 492-5..... Mon. 492-7.....	76.62 111.21	Mon. 494-12.....	45 16 08.25 71 21 41.14	189 46 08 43 22 21	Mon. 494-11..... Mon. 495.....	111.37 107.28
Mon. 492-7.....	45 16 46.53 71 19 56.17	219 21 46 350 21 54	Mon. 492-6..... Mon. 492-8.....	111.21 60.39	Mon. 495.....	45 16 05.72 71 21 44.52	223 22 19 43 22 49	Mon. 494-12..... Mon. 495-1.....	107.28 64.80
Mon. 492-8.....	45 16 44.60 71 19 55.71	170 21 54 39 22 15	Mon. 492-7..... Mon. 492-9.....	60.39 108.16	Mon. 495-1.....	45 16 04.20 71 21 46.56	223 22 48 53 24 13	Mon. 495..... Mon. 495-2.....	64.80 66.33
Mon. 492-9.....	45 16 41.89 71 19 58.85	219 22 13 9 55 49	Mon. 492-8..... Mon. 492-10.....	108.16 89.24	Mon. 495-2.....	45 16 02.92 71 21 49.00	233 24 11 10 29 46	Mon. 495-1..... Mon. 495-3.....	66.33 73.67
Mon. 492-10.....	45 16 39.04 71 19 59.56	189 55 48 28 26 28	Mon. 492-9..... Mon. 492-11.....	89.24 65.44	Mon. 495-3.....	45 16 00.57 71 21 49.61	190 29 46 338 04 40	Mon. 495-2..... Mon. 495-4.....	73.67 194.04
Mon. 492-11.....	45 16 37.18 71 20 00.99	208 26 27 359 37 39	Mon. 492-10..... Mon. 492-12.....	65.44 116.90	Mon. 495-4.....	45 15 54.74 71 21 46.29	158 04 42 334 34 30	Mon. 495-3..... Mon. 495-5.....	194.04 67.01
Mon. 492-12.....	45 16 33.39 71 20 00.96	179 37 39 37 11 18	Mon. 492-11..... Mon. 493.....	116.90 3.68	Mon. 495-5.....	45 15 52.78 71 21 44.97	154 34 31 320 14 31	Mon. 495-4..... Mon. 496.....	67.01 20.17
Mon. 493.....	45 16 33.29 71 20 01.06	217 11 18 37 11 18	Mon. 492-12..... Mon. 493-1.....	3.68 55.67	Mon. 496.....	45 15 52.27 71 21 44.38	140 14 31 320 13 48	Mon. 495-5..... Mon. 496-1.....	20.17 191.32
Mon. 493-1.....	45 16 31.86 71 20 02.60	217 11 17 29 30 56	Mon. 493..... Mon. 493-2.....	55.67 242.48	Mon. 496-1.....	45 15 47.51 71 21 38.76	140 13 52 328 59 17	Mon. 496..... Mon. 496-2.....	191.32 131.67
Mon. 493-2.....	45 16 25.02 71 20 08.08	209 30 52 53 21 40	Mon. 493-1..... Mon. 493-3.....	242.48 22.42	Mon. 496-2.....	45 15 43.86 71 21 35.65	148 59 19 350 30 38	Mon. 496-1..... Mon. 496-3.....	131.67 296.55
Mon. 493-3.....	45 16 24.59 71 20 08.91	233 21 39 51 02 49	Mon. 493-2..... Mon. 493-4.....	22.42 118.30	Mon. 496-3.....	45 15 34.38 71 21 33.41	170 30 40 330 32 09	Mon. 496-2..... Mon. 496-4.....	296.55 123.53
Mon. 493-4.....	45 16 22.18 71 20 13.13	231 02 46 81 44 03	Mon. 493-3..... Mon. 493-5.....	118.30 168.79	Mon. 496-4.....	45 15 30.90 71 21 30.62	150 32 11 334 54 44	Mon. 496-3..... Mon. 496-5.....	123.53 122.32
Mon. 493-5.....	45 16 21.39 71 20 20.79	261 43 58 70 57 00	Mon. 493-4..... Mon. 493-6.....	168.79 156.18	Mon. 496-5.....	45 15 27.31 71 21 28.24	154 54 46 332 59 46	Mon. 496-4..... Mon. 496-6.....	122.32 114.62
Mon. 493-6.....	45 16 19.74 71 20 27.56	250 56 55 59 23 37	Mon. 493-5..... Mon. 493-7.....	156.18 175.84	Mon. 496-6.....	45 15 24.00 71 21 25.86	152 59 48 12 01 18	Mon. 496-5..... Mon. 496-7.....	114.62 144.67
Mon. 493-7.....	45 16 16.84 71 20 34.50	239 23 32 89 35 29	Mon. 493-6..... Mon. 493-8.....	175.84 153.87	Mon. 496-7.....	45 15 19.42 71 21 27.24	192 01 17 324 58 47	Mon. 496-6..... Mon. 496-8.....	144.67 86.91
Mon. 493-8.....	45 16 16.81 71 20 41.56	269 35 24 102 44 30	Mon. 493-7..... Mon. 493-9.....	153.87 35.38	Mon. 496-8.....	45 15 17.11 71 21 24.95	144 58 49 8 59 49	Mon. 496-7..... Mon. 496-9.....	86.91 86.14
Mon. 493-9.....	45 16 17.06 71 20 43.14	282 44 29 102 39 46	Mon. 493-8..... Mon. 493-10.....	35.38 86.89	Mon. 496-9.....	45 15 14.35 71 21 25.57	188 59 49 29 13 19	Mon. 496-8..... Mon. 496-10.....	86.14 91.95
Mon. 493-10.....	45 16 17.68 71 20 47.03	282 39 43 125 47 01	Mon. 493-9..... Mon. 493-11.....	86.89 104.75	Mon. 496-10.....	45 15 11.75 71 21 27.63	209 13 17 27 55 17	Mon. 496-9..... Mon. 497.....	91.95 175.20
Mon. 493-11.....	45 16 19.66 71 20 50.93	305 46 59 87 17 21	Mon. 493-10..... Mon. 494.....	104.75 27.76	Mon. 497.....	45 15 06.74 71 21 31.39	207 55 14 27 57 23	Mon. 496-10..... Mon. 497-1.....	175.20 110.06
Mon. 494.....	45 16 19.62 71 20 52.20	267 17 20 87 17 54	Mon. 493-11..... Mon. 494-1.....	27.76 32.36	Mon. 497-1.....	45 15 03.59 71 21 33.76	207 57 21 42 33 04	Mon. 497..... Mon. 497-2.....	110.06 54.69

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 497-2	45 15 02.29 71 21 35.45	222 33 03 55 42 34	Mon. 497-1 Mon. 497-3	54.69 262.32	Mon. 500-17	45 14 02.31 71 23 14.95	318 27 29 122 42 53	Mon. 500-16 Mon. 500-18	118.57 218.33
Mon. 497-3	45 14 57.50 71 21 45.39	235 42 27 28 53 56	Mon. 497-2 Mon. 497-4	262.32 115.80	Mon. 500-18	45 14 06.13 71 23 23.37	302 42 47 151 09 31	Mon. 500-17 Mon. 500-19	218.33 192.27
Mon. 497-4	45 14 54.22 71 21 47.96	208 53 54 66 52 35	Mon. 497-3 Mon. 498	115.80 156.19	Mon. 500-19	45 14 11.58 71 23 27.62	331 09 28 135 10 17	Mon. 500-18 Mon. 501	192.27 143.26
Mon. 498	45 14 52.23 71 21 54.54	246 52 30 66 54 29	Mon. 497-4 Mon. 498-1	156.19 96.77	Mon. 501	45 14 14.88 71 23 32.25	315 10 14 152 29 29	Mon. 500-19 Mon. 501-1	143.26 165.78
Mon. 498-1	45 14 51.00 71 21 58.63	246 54 26 88 19 55	Mon. 498 Mon. 498-2	96.77 93.81	Mon. 501-1	45 14 19.64 71 23 35.76	332 29 27 192 26 38	Mon. 501 Mon. 501-2	165.78 82.08
Mon. 498-2	45 14 50.91 71 22 02.93	268 19 52 32 42 55	Mon. 498-1 Mon. 498-3	93.81 34.43	Mon. 501-2	45 14 22.23 71 23 34.95	12 26 39 132 43 40	Mon. 501-1 Mon. 501-3	82.08 61.13
Mon. 498-3	45 14 49.97 71 22 03.78	212 42 54 30 20 48	Mon. 498-2 Mon. 498-4	34.43 56.00	Mon. 501-3	45 14 23.58 71 23 37.01	312 43 39 137 11 21	Mon. 501-2 Mon. 501-4	61.13 167.97
Mon. 498-4	45 14 48.41 71 22 05.08	210 20 47 49 35 16	Mon. 498-3 Mon. 498-5	56.00 52.16	Mon. 501-4	45 14 27.57 71 23 42.24	317 11 17 125 40 39	Mon. 501-3 Mon. 501-5	167.97 179.38
Mon. 498-5	45 14 47.31 71 22 06.90	229 35 15 87 13 39	Mon. 498-4 Mon. 499	52.16 56.83	Mon. 501-5	45 14 30.96 71 23 48.93	305 40 34 104 58 00	Mon. 501-4 Mon. 501-6	179.38 116.07
Mon. 499	45 14 47.22 71 22 09.50	267 13 37 87 14 44	Mon. 498-5 Mon. 499-1	56.83 286.01	Mon. 501-6	45 14 31.93 71 23 54.07	284 57 56 89 26 28	Mon. 501-5 Mon. 501-7	116.07 146.74
Mon. 499-1	45 14 46.78 71 22 22.60	267 14 35 44 03 35	Mon. 499 Mon. 499-2	286.01 122.62	Mon. 501-7	45 14 31.88 71 24 00.80	269 26 23 105 30 00	Mon. 501-6 Mon. 501-8	146.74 204.18
Mon. 499-2	45 14 43.92 71 22 26.51	224 03 32 76 45 32	Mon. 499-1 Mon. 499-3	122.62 101.07	Mon. 501-8	45 14 33.65 71 24 09.82	285 29 54 68 51 20	Mon. 501-7 Mon. 501-9	204.18 152.39
Mon. 499-3	45 14 43.17 71 22 31.02	256 45 29 80 47 29	Mon. 499-2 Mon. 499-4	101.07 98.27	Mon. 501-9	45 14 31.87 71 24 16.33	248 51 15 78 33 52	Mon. 501-8 Mon. 501-10	152.39 143.50
Mon. 499-4	45 14 42.66 71 22 35.47	260 47 26 37 56 26	Mon. 499-3 Mon. 500	98.27 100.26	Mon. 501-10	45 14 30.95 71 24 22.78	258 33 47 62 17 53	Mon. 501-9 Mon. 501-11	143.50 149.38
Mon. 500	45 14 40.10 71 22 38.29	217 56 24 37 56 46	Mon. 499-4 Mon. 500-1	100.26 87.09	Mon. 501-11	45 14 28.70 71 24 28.84	242 17 49 9 14 10	Mon. 501-10 Mon. 502	149.38 91.08
Mon. 500-1	45 14 37.88 71 22 40.75	217 56 44 67 01 28	Mon. 500 Mon. 500-2	87.09 78.30	Mon. 502	45 14 25.79 71 24 29.52	189 14 10 9 12 56	Mon. 501-11 Mon. 502-1	91.08 45.31
Mon. 500-2	45 14 36.89 71 22 44.06	247 01 26 29 53 57	Mon. 500-1 Mon. 500-3	78.30 85.27	Mon. 502-1	45 14 24.34 71 24 29.85	189 12 56 38 00 56	Mon. 502 Mon. 502-2	45.31 100.96
Mon. 500-3	45 14 34.49 71 22 46.00	209 53 56 0 44 00	Mon. 500-2 Mon. 500-4	85.27 45.38	Mon. 502-2	45 14 21.76 71 24 32.70	218 00 54 66 40 54	Mon. 502-1 Mon. 502-3	100.96 48.84
Mon. 500-4	45 14 33.02 71 22 46.03	180 44 00 3 19 14	Mon. 500-3 Mon. 500-5	45.38 78.37	Mon. 502-3	45 14 21.14 71 24 34.75	246 40 52 72 27 52	Mon. 502-2 Mon. 502-4	48.84 64.53
Mon. 500-5	45 14 30.49 71 22 46.24	183 19 14 7 58 38	Mon. 500-4 Mon. 500-6	78.37 35.75	Mon. 502-4	45 14 20.50 71 24 37.58	252 27 50 103 05 50	Mon. 502-3 Mon. 502-5	64.53 89.14
Mon. 500-6	45 14 29.34 71 22 46.47	187 58 38 33 27 12	Mon. 500-5 Mon. 500-7	35.75 99.52	Mon. 502-5	45 14 21.16 71 24 41.56	283 05 47 59 09 47	Mon. 502-4 Mon. 502-6	89.14 86.85
Mon. 500-7	45 14 26.65 71 22 48.98	213 27 10 13 01 34	Mon. 500-6 Mon. 500-8	99.52 221.99	Mon. 502-6	45 14 19.72 71 24 44.98	239 09 45 22 22 45	Mon. 502-5 Mon. 502-7	86.85 106.45
Mon. 500-8	45 14 19.65 71 22 51.28	193 01 32 28 33 21	Mon. 500-7 Mon. 500-9	221.99 138.56	Mon. 502-7	45 14 16.53 71 24 46.83	202 22 44 354 07 14	Mon. 502-6 Mon. 502-8	106.45 104.63
Mon. 500-9	45 14 15.70 71 22 54.31	208 33 19 33 39 48	Mon. 500-8 Mon. 500-10	138.56 107.30	Mon. 502-8	45 14 13.16 71 24 46.34	174 07 14 24 54 14	Mon. 502-7 Mon. 502-9	104.63 129.97
Mon. 500-10	45 14 12.81 71 22 57.04	213 39 46 16 01 00	Mon. 500-9 Mon. 500-11	107.30 165.74	Mon. 502-9	45 14 09.34 71 24 48.85	204 54 12 109 47 12	Mon. 502-8 Mon. 502-10	129.97 81.80
Mon. 500-11	45 14 07.65 71 22 59.14	196 00 58 28 37 27	Mon. 500-10 Mon. 500-12	165.74 65.67	Mon. 502-10	45 14 10.24 71 24 52.38	289 47 10 81 07 40	Mon. 502-9 Mon. 502-11	81.80 225.34
Mon. 500-12	45 14 05.78 71 23 00.58	208 37 26 28 37 05	Mon. 500-11 Mon. 500-13	65.67 86.64	Mon. 502-11	45 14 09.11 71 25 02.58	261 07 33 37 15 33	Mon. 502-10 Mon. 502-12	225.34 112.72
Mon. 500-13	45 14 03.32 71 23 02.48	208 37 03 35 59 52	Mon. 500-12 Mon. 500-14	86.64 91.28	Mon. 502-12	45 14 06.20 71 25 05.71	217 15 31 48 21 31	Mon. 502-11 Mon. 502-13	112.72 164.81
Mon. 500-14	45 14 00.93 71 23 04.94	215 59 50 60 54 04	Mon. 500-13 Mon. 500-15	91.28 105.35	Mon. 502-13	45 14 02.66 71 25 11.36	228 21 27 32 31 57	Mon. 502-12 Mon. 502-14	164.81 149.80
Mon. 500-15	45 13 59.27 71 23 09.16	240 54 01 95 56 15	Mon. 500-14 Mon. 500-16	105.35 47.95	Mon. 502-14	45 13 58.17 71 25 13.99	202 31 55 55 44 55	Mon. 502-13 Mon. 502-15	149.80 31.54
Mon. 500-16	45 13 59.43 71 23 11.34	275 56 13 138 27 32	Mon. 500-15 Mon. 500-17	47.95 118.57	Mon. 502-15	45 13 57.60 71 25 15.19	235 44 54 53 15 54	Mon. 502-14 Mon. 502-16	31.54 70.86

## BOUNDARY MONUMENTS—SOURCE OF SOUTHWEST BRANCH OF ST. JOHN TO HEAD OF HALLS STREAM---Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 502-16-----	45 13 56.23 71 25 17.79	233 15 52 143 34 52	Mon. 502-15----- Mon. 502-17-----	70.86 80.01	Mon. 503-15-----	45 14 18.23 71 26 11.26	291 41 53 115 23 46	Mon. 503-14----- Mon. 503-16-----	52.57 129.28
Mon. 502-17-----	45 13 58.31 71 25 19.97	323 34 50 121 12 20	Mon. 502-16----- Mon. 502-18-----	80.01 180.32	Mon. 503-16-----	45 14 20.03 71 26 16.61	295 23 43 99 59 18	Mon. 503-15----- Mon. 504-----	129.28 137.63
Mon. 502-18-----	45 14 01.34 71 25 27.04	301 12 15 102 25 15	Mon. 502-17----- Mon. 503-----	180.32 22.69	Mon. 504-----	45 14 20.80 71 26 22.83	279 59 14 99 57 09	Mon. 503-16----- Mon. 504-1-----	137.63 44.99
Mon. 503-----	45 14 01.50 71 25 28.06	282 25 14 102 23 55	Mon. 502-18----- Mon. 503-1-----	22.69 24.91	Mon. 504-1-----	45 14 21.06 71 26 24.86	279 57 08 44 15 58	Mon. 504----- Mon. 504-2-----	44.99 80.64
Mon. 503-1-----	45 14 01.67 71 25 29.17	282 23 54 66 14 44	Mon. 503----- Mon. 503-2-----	24.91 107.20	Mon. 504-2-----	45 14 19.18 71 26 27.44	224 15 56 93 31 26	Mon. 504-1----- Mon. 504-3-----	80.64 119.46
Mon. 503-2-----	45 14 00.27 71 25 33.67	246 14 41 118 02 51	Mon. 503-1----- Mon. 503-3-----	107.20 85.43	Mon. 504-3-----	45 14 19.42 71 26 32.91	273 31 22 61 11 42	Mon. 504-2----- Mon. 504-4-----	119.46 36.28
Mon. 503-3-----	45 14 01.57 71 25 37.12	298 02 49 152 35 14	Mon. 503-2----- Mon. 503-4-----	85.43 59.39	Mon. 504-4-----	45 14 18.86 71 26 34.36	241 11 41 61 19 01	Mon. 504-3----- Mon. 504-5-----	36.28 45.28
Mon. 503-4-----	45 14 03.28 71 25 38.38	332 35 13 100 50 28	Mon. 503-3----- Mon. 503-5-----	59.39 51.65	Mon. 504-5-----	45 14 18.15 71 26 36.18	241 19 00 23 12 40	Mon. 504-4----- Mon. 504-6-----	45.28 40.34
Mon. 503-5-----	45 14 03.60 71 25 40.70	280 50 26 43 32 36	Mon. 503-4----- Mon. 503-6-----	51.65 58.53	Mon. 504-6-----	45 14 16.95 71 26 36.91	203 12 39 12 35 24	Mon. 504-5----- Mon. 504-7-----	40.34 136.74
Mon. 503-6-----	45 14 02.22 71 25 42.55	223 32 35 96 17 55	Mon. 503-5----- Mon. 503-7-----	58.53 95.60	Mon. 504-7-----	45 14 12.63 71 26 38.28	192 35 23 343 59 53	Mon. 504-6----- Mon. 505-----	136.74 32.89
Mon. 503-7-----	45 14 02.56 71 25 46.91	276 17 52 161 50 17	Mon. 503-6----- Mon. 503-8-----	95.60 131.56	Mon. 505-----	45 14 11.60 71 26 37.86	163 59 53 343 55 47	Mon. 504-7----- Mon. 505-1-----	32.89 30.85
Mon. 503-8-----	45 14 06.61 71 25 48.79	341 50 16 180 43 46	Mon. 503-7----- Mon. 503-9-----	131.56 98.30	Mon. 505-1-----	45 14 10.64 71 26 37.47	163 55 47 18 34 04	Mon. 505----- Mon. 506-----	30.85 79.23
Mon. 503-9-----	45 14 09.79 71 25 48.73	0 43 46 121 43 56	Mon. 503-8----- Mon. 503-10-----	98.30 64.85	Mon. 506-----	45 14 08.21 71 26 38.63	198 34 03 18 35 51	Mon. 505-1----- Mon. 506-1-----	79.23 7.15
Mon. 503-10-----	45 14 10.90 71 25 51.26	301 43 54 101 15 14	Mon. 503-9----- Mon. 503-11-----	64.85 79.23	Mon. 506-1-----	45 14 07.99 71 26 38.73	198 35 51 37 38 18	Mon. 506----- Mon. 506-2-----	7.15 38.55
Mon. 503-11-----	45 14 11.40 71 25 54.82	281 15 11 129 34 51	Mon. 503-10----- Mon. 503-12-----	79.23 109.59	Mon. 506-2-----	45 14 07.00 71 26 39.81	217 38 17 330 40 04	Mon. 506-1----- Mon. 506-3-----	38.55 33.24
Mon. 503-12-----	45 14 13.66 71 25 58.69	309 34 48 136 52 43	Mon. 503-11----- Mon. 503-13-----	109.59 208.79	Mon. 506-3-----	45 14 06.07 71 26 39.06	150 40 05 330 36 22	Mon. 506-2----- Mon. 507-----	33.24 17.26
Mon. 503-13-----	45 14 18.60 71 26 05.24	316 52 38 69 35 18	Mon. 503-12----- Mon. 503-14-----	208.79 87.96	Mon. 507-----	45 14 05.58 71 26 38.68	150 36 22 276 53	Mon. 506-3----- T. P. 1-----	17.26 9.9
Mon. 503-14-----	45 14 17.60 71 26 09.02	249 35 15 111 41 55	Mon. 503-13----- Mon. 503-15-----	87.96 52.57					



GEOGRAPHIC POSITIONS OF BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS DEFINING THE INTERNATIONAL BOUNDARY THROUGH HALLS STREAM

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° '				° ' "	° '		
T. P. 1.....	45 14 05.54 71 26 38.23	96 53 240 50	Mon. 507..... T. P. 2.....	9.9 40.4	T. P. 28.....	45 13 56.89 71 26 17.51	128 38 338 45	T. P. 27..... T. P. 29.....	22.8 35.5
T. P. 2.....	45 14 06.18 71 26 36.61	60 50 285 10	T. P. 1..... T. P. 3.....	40.4 18.1	T. P. 29.....	45 13 55.82 71 26 16.92	158 45 283 59	T. P. 28..... T. P. 30.....	35.5 33.3
T. P. 3.....	45 14 06.03 71 26 35.81	105 10 219 03	T. P. 2..... T. P. 4.....	18.1 10.7	T. P. 30.....	45 13 55.56 71 26 15.44	103 59 250 45	T. P. 29..... T. P. 31.....	33.3 22.6
T. P. 4.....	45 14 06.30 71 26 35.50	39 03 274 09	T. P. 3..... T. P. 5.....	10.7 16.0	T. P. 31.....	45 13 55.80 71 26 14.46	70 45 298 58	T. P. 30..... T. P. 32.....	22.6 14.5
T. P. 5.....	45 14 06.26 71 26 34.77	94 09 252 08	T. P. 4..... T. P. 6.....	16.0 15.9	T. P. 32.....	45 13 55.57 71 26 13.88	118 58 2 48	T. P. 31..... T. P. 33.....	14.5 22.3
T. P. 6.....	45 14 06.42 71 26 34.07	72 08 277 32	T. P. 5..... T. P. 7.....	15.9 32.9	T. P. 33.....	45 13 54.85 71 26 13.93	182 48 307 18	T. P. 32..... T. P. 34.....	22.3 87.8
T. P. 7.....	45 14 06.28 71 26 32.57	97 32 252 16	T. P. 6..... T. P. 8.....	32.9 45.2	T. P. 34.....	45 13 53.13 71 26 10.73	127 18 224 32	T. P. 33..... T. P. 35.....	87.8 14.0
T. P. 8.....	45 14 06.72 71 26 30.60	72 16 285 45	T. P. 7..... T. P. 9.....	45.2 51.5	T. P. 35.....	45 13 53.45 71 26 10.28	44 32 200 09	T. P. 34..... T. P. 36.....	14.0 36.9
T. P. 9.....	45 14 06.27 71 26 28.33	105 45 261 41	T. P. 8..... T. P. 10.....	51.5 10.9	T. P. 36.....	45 13 54.57 71 26 09.70	20 09 271 26	T. P. 35..... T. P. 37.....	36.9 13.9
T. P. 10.....	45 14 06.32 71 26 27.84	81 41 313 45	T. P. 9..... T. P. 11.....	10.9 35.7	T. P. 37.....	45 13 54.56 71 26 09.06	91 26 337 10	T. P. 36..... T. P. 38.....	13.9 61.9
T. P. 11.....	45 14 05.52 71 26 26.66	133 45 323 56	T. P. 10..... T. P. 12.....	35.7 27.2	T. P. 38.....	45 13 52.72 71 26 07.96	157 10 321 34	T. P. 37..... T. P. 39.....	61.9 46.6
T. P. 12.....	45 14 04.81 71 26 25.92	143 56 276 01	T. P. 11..... T. P. 13.....	27.2 12.7	T. P. 39.....	45 13 51.54 71 26 06.63	141 34 304 48	T. P. 38..... T. P. 40.....	46.6 42.7
T. P. 13.....	45 14 04.77 71 26 25.34	96 01 317 18	T. P. 12..... T. P. 14.....	12.7 27.5	T. P. 40.....	45 13 50.74 71 26 05.03	124 48 313 58	T. P. 39..... T. P. 41.....	42.7 54.2
T. P. 14.....	45 14 04.12 71 26 24.49	137 18 357 08	T. P. 13..... T. P. 15.....	27.5 37.0	T. P. 41.....	45 13 49.52 71 26 03.24	133 58 348 27	T. P. 40..... T. P. 42.....	54.2 12.4
T. P. 15.....	45 14 02.92 71 26 24.40	177 08 320 59	T. P. 14..... T. P. 16.....	37.0 35.6	T. P. 42.....	45 13 49.13 71 26 03.13	168 27 278 29	T. P. 41..... T. P. 43.....	12.4 10.7
T. P. 16.....	45 14 02.02 71 26 23.37	140 59 344 01	T. P. 15..... T. P. 17.....	35.6 23.8	T. P. 43.....	45 13 49.08 71 26 02.64	98 29 358 30	T. P. 42..... T. P. 44.....	10.7 17.7
T. P. 17.....	45 14 01.28 71 26 23.07	164 01 305 50	T. P. 16..... T. P. 18.....	23.8 25.3	T. P. 44.....	45 13 48.51 71 26 02.62	178 30 258 26 268 42	T. P. 43..... Ref. Mon. 509..... T. P. 45.....	17.7 13.7 23.9
T. P. 18.....	45 14 00.80 71 26 22.13	125 50 2 53	T. P. 17..... T. P. 19.....	25.3 14.8	Ref. Mon. 509.....	45 13 48.60 71 26 02.00	78 26 138 26	T. P. 44..... Run.....	13.7 83.8
T. P. 19.....	45 14 00.32 71 26 22.16	182 53 312 48	T. P. 18..... T. P. 20.....	14.8 10.8	T. P. 45.....	45 13 48.53 71 26 01.52	88 42 242 27	T. P. 44..... T. P. 46.....	23.9 17.7
T. P. 20.....	45 14 00.08 71 26 21.80	132 48 293 34	T. P. 19..... T. P. 21.....	10.8 20.6	T. P. 46.....	45 13 48.80 71 26 00.80	62 27 341 22	T. P. 45..... T. P. 47.....	17.7 35.1
T. P. 21.....	45 13 59.81 71 26 20.94	113 34 338 49	T. P. 20..... T. P. 22.....	20.6 13.1	T. P. 47.....	45 13 47.72 71 26 00.29	161 22 357 04	T. P. 46..... T. P. 48.....	35.1 11.3
T. P. 22.....	45 13 59.42 71 26 20.72	158 49 308 36	T. P. 21..... T. P. 23.....	13.1 15.7	T. P. 48.....	45 13 47.35 71 26 00.26	177 04 303 23	T. P. 47..... T. P. 49.....	11.3 19.1
T. P. 23.....	45 13 59.10 71 26 20.16	128 36 355 41 14 54	T. P. 22..... T. P. 24..... Ref Mon. 508.....	15.7 14.0 10.7	T. P. 49.....	45 13 47.01 71 25 59.53	123 23 354 30	T. P. 48..... T. P. 50.....	19.1 17.2
Ref. Mon. 508.....	45 13 58.76 71 26 20.28	194 54 263 42 313 56	T. P. 23..... Bog..... T. P. 24.....	10.7 111.0 5.3	T. P. 50.....	45 13 46.46 71 25 59.45	174 30 275 36	T. P. 49..... T. P. 51.....	17.2 21.3
T. P. 24.....	45 13 58.64 71 26 20.11	133 56 175 41 5 18	Ref. Mon. 508..... T. P. 23..... T. P. 25.....	5.3 14.0 26.6	T. P. 51.....	45 13 46.39 71 25 58.48	95 36 335 32	T. P. 50..... T. P. 52.....	21.3 26.3
T. P. 25.....	45 13 57.78 71 26 20.22	185 18 325 10	T. P. 24..... T. P. 26.....	26.6 16.9	T. P. 52.....	45 13 45.62 71 25 57.98	155 32 280 03	T. P. 51..... T. P. 53.....	26.3 29.1
T. P. 26.....	45 13 57.33 71 26 19.78	145 10 269 09	T. P. 25..... T. P. 27.....	16.9 31.6	T. P. 53.....	45 13 45.46 71 25 56.67	100 03 330 42	T. P. 52..... T. P. 54.....	29.1 38.6
T. P. 27.....	45 13 57.35 71 26 18.33	89 09 308 38	T. P. 26..... T. P. 28.....	31.6 22.8	T. P. 54.....	45 13 44.37 71 25 55.80	150 42 15 21	T. P. 53..... T. P. 55.....	38.6 35.1
					T. P. 55.....	45 13 43.27 71 25 56.23	195 21 291 16	T. P. 54..... T. P. 56.....	35.1 14.2

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° '				° ' "	° '		
T. P. 56-----	45 13 43.10 71 25 55.62	111 16 323 32	T. P. 55----- T. P. 57-----	14.2 20.9	T. P. 86-----	45 13 30.51 71 25 34.62	111 36 316 06	T. P. 85----- T. P. 87-----	27.3 30.4
T. P. 57-----	45 13 42.56 71 25 55.05	143 32 271 08	T. P. 56----- T. P. 58-----	20.9 12.6	T. P. 87-----	45 13 29.80 71 25 33.66	136 06 254 04	T. P. 86----- T. P. 88-----	30.4 43.7
T. P. 58-----	45 13 42.55 71 25 54.47	91 08 318 10	T. P. 57----- T. P. 59-----	12.6 9.2	T. P. 88-----	45 13 30.19 71 25 31.73	74 04 272 45	T. P. 87----- T. P. 89-----	43.7 39.7
T. P. 59-----	45 13 42.33 71 25 54.19	138 10 272 36	T. P. 58----- T. P. 60-----	9.2 25.2	T. P. 89-----	45 13 30.13 71 25 29.91	92 45 316 58	T. P. 88----- T. P. 90-----	39.7 14.9
T. P. 60-----	45 13 42.29 71 25 53.04	92 36 335 09	T. P. 59----- T. P. 61-----	25.2 14.3	T. P. 90-----	45 13 29.78 71 25 29.44	136 58 289 27 322 22	T. P. 89----- T. P. 91----- Ref. Mon. 510-1--	14.9 47.9 65.4
T. P. 61-----	45 13 41.87 71 25 52.77	155 09 305 49	T. P. 60----- T. P. 62-----	14.3 25.1	Ref. Mon. 510-1--	45 13 28.10 71 25 27.61	142 22 188 13 308 52	T. P. 90----- T. P. 91----- Ref. Mon. 510-2--	65.4 36.3 260.1
T. P. 62-----	45 13 41.39 71 25 51.84	125 49 220 53	T. P. 61----- T. P. 63-----	25.1 19.9	T. P. 91-----	45 13 29.26 71 25 27.38	8 13 109 27 239 47	Ref. Mon. 510-1-- T. P. 90----- T. P. 92-----	36.3 47.9 35.1
T. P. 63-----	45 13 41.88 71 25 51.24	40 53 300 33	T. P. 62----- T. P. 64-----	19.9 13.1	T. P. 92-----	45 13 29.83 71 25 25.99	59 47 306 01	T. P. 91----- T. P. 93-----	35.1 32.0
T. P. 64-----	45 13 41.66 71 25 50.72	120 33 292 54	T. P. 63----- T. P. 65-----	13.1 19.6	T. P. 93-----	45 13 29.22 71 25 24.80	126 01 293 37	T. P. 92----- T. P. 94-----	32.0 45.6
T. P. 65-----	45 13 41.41 71 25 49.89	112 54 233 22	T. P. 64----- T. P. 66-----	19.6 21.5	T. P. 94-----	45 13 28.63 71 25 22.88	113 37 322 42	T. P. 93----- T. P. 95-----	45.6 44.2
T. P. 66-----	45 13 41.82 71 25 49.10	53 22 320 32	T. P. 65----- T. P. 67-----	21.5 51.8	T. P. 95-----	45 13 27.49 71 25 21.65	142 42 260 41	T. P. 94----- T. P. 96-----	44.2 19.4
T. P. 67-----	45 13 40.53 71 25 47.59	140 32 299 53	T. P. 66----- T. P. 68-----	51.8 54.4	T. P. 96-----	45 13 27.59 71 25 20.77	80 41 328 15	T. P. 95----- T. P. 97-----	19.4 21.4
T. P. 68-----	45 13 39.65 71 25 45.43	119 53 320 49	T. P. 67----- T. P. 69-----	54.4 18.5	T. P. 97-----	45 13 27.00 71 25 20.25	148 15 296 04	T. P. 96----- T. P. 98-----	21.4 23.0
T. P. 69-----	45 13 39.19 71 25 44.90	140 49 283 57	T. P. 68----- T. P. 70-----	18.5 11.0	T. P. 98-----	45 13 26.67 71 25 19.30	116 04 303 58	T. P. 97----- T. P. 99-----	23.0 35.4
T. P. 70-----	45 13 39.10 71 25 44.41	103 57 313 31	T. P. 69----- T. P. 71-----	11.0 22.1	T. P. 99-----	45 13 26.03 71 25 17.96	123 58 263 21	T. P. 98----- T. P. 100-----	35.4 28.1
T. P. 71-----	45 13 38.61 71 25 43.67	133 31 356 02	T. P. 70----- T. P. 72-----	22.1 18.7	T. P. 100-----	45 13 26.14 71 25 16.68	83 21 321 14	T. P. 99----- T. P. 101-----	28.1 18.2
T. P. 72-----	45 13 38.01 71 25 43.61	176 02 303 58	T. P. 71----- T. P. 73-----	18.7 12.6	T. P. 101-----	45 13 25.68 71 25 16.16	141 14 359 13	T. P. 100----- T. P. 102-----	18.2 38.1
T. P. 73-----	45 13 37.78 71 25 43.13	123 58 259 58 293 39	T. P. 72----- T. P. 74----- Ref. Mon. 510--	12.6 17.7 6.1	T. P. 102-----	45 13 24.45 71 25 16.14	43 14 179 13 306 03	Ref. Mon. 510-2-- T. P. 101----- T. P. 103-----	69.6 38.1 62.2
Ref. Mon. 510--	45 13 37.70 71 25 42.88	17 47 113 39 245 01	Labor----- T. P. 73----- T. P. 74-----	183.0 6.1 13.1	Ref. Mon. 510-2--	45 13 22.81 71 25 18.33	223 14 261 48 308 06	T. P. 102----- T. P. 103----- Ref. Mon. 510-3--	69.6 98.9 301.4
T. P. 74-----	45 13 37.88 71 25 42.34	65 01 79 58 325 16	Ref. Mon. 510-- T. P. 75-----	13.1 17.7 18.6	T. P. 103-----	45 13 23.27 71 25 13.85	81 48 126 03 20 27	Ref. Mon. 510-2-- T. P. 102----- T. P. 104-----	98.9 62.2 22.3
T. P. 75-----	45 13 37.39 71 25 41.85	145 16 300 59	T. P. 74----- T. P. 76-----	18.6 23.5	T. P. 104-----	45 13 22.59 71 25 14.21	200 27 354 06	T. P. 103----- T. P. 105-----	22.3 11.5
T. P. 76-----	45 13 37.00 71 25 40.93	120 59 339 31	T. P. 75----- T. P. 77-----	23.5 11.2	T. P. 105-----	45 13 22.22 71 25 14.16	174 06 298 37	T. P. 104----- T. P. 106-----	11.5 72.0
T. P. 77-----	45 13 36.66 71 25 40.75	159 31 301 36	T. P. 76----- T. P. 78-----	11.2 49.3	T. P. 106-----	45 13 21.10 71 25 11.26	118 37 329 13	T. P. 105----- T. P. 107-----	72.0 27.1
T. P. 78-----	45 13 35.82 71 25 38.82	121 36 333 20	T. P. 77----- T. P. 79-----	49.3 13.3	T. P. 107-----	45 13 20.35 71 25 10.62	149 13 341 45	T. P. 106----- T. P. 108-----	27.1 23.1
T. P. 79-----	45 13 35.44 71 25 38.55	153 20 308 13	T. P. 78----- T. P. 80-----	13.3 41.4	T. P. 108-----	45 13 19.64 71 25 10.29	161 45 296 00 325 01	T. P. 107----- T. P. 109----- Ref. Mon. 510-3--	23.1 66.3 107.5
T. P. 80-----	45 13 34.61 71 25 37.06	128 13 18 35	T. P. 79----- T. P. 81-----	41.4 37.4	Ref. Mon. 510-3--	45 13 16.79 71 25 07.46	145 01 128 06 178 03	T. P. 108----- Ref. Mon. 510-2-- T. P. 109-----	107.5 301.4 59.0
T. P. 81-----	45 13 33.46 71 25 37.61	198 35 355 19	T. P. 80----- T. P. 82-----	37.4 31.5	T. P. 109-----	45 13 18.70 71 25 07.55	116 00 358 03 282 33	T. P. 108----- Ref. Mon. 510-3-- T. P. 110-----	66.3 59.0 22.6
T. P. 82-----	45 13 32.44 71 25 37.49	175 19 7 28	T. P. 81----- T. P. 83-----	31.5 29.0	T. P. 110-----	45 13 18.54 71 25 06.54	102 33 268 01	T. P. 109----- T. P. 111-----	22.6 39.8
T. P. 83-----	45 13 31.51 71 25 37.66	187 28 322 42	T. P. 82----- T. P. 84-----	29.0 21.9	T. P. 111-----	45 13 18.59 71 25 04.72	88 01 346 43	T. P. 110----- T. P. 112-----	39.8 21.0
T. P. 84-----	45 13 30.94 71 25 37.05	142 42 276 28	T. P. 83----- T. P. 85-----	21.9 27.8					
T. P. 85-----	45 13 30.84 71 25 35.78	96 28 291 36	T. P. 84----- T. P. 86-----	27.8 27.3					

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° '				° ' "	° '		
T. P. 112-----	45 13 17.93 71 25 04.50	166 43 329 40	T. P. 111----- T. P. 113-----	21.0 60.2	T. P. 137-----	45 13 01.28 71 24 31.15	75 36 279 31	T. P. 136----- T. P. 138-----	96.7 44.0
T. P. 113-----	45 13 16.25 71 25 03.11	149 40 347 42	T. P. 112----- T. P. 114-----	60.2 36.1	T. P. 138-----	45 13 01.04 71 24 29.17	99 31 315 23 321 41	T. P. 137----- T. P. 139----- Ref. Mon. 510-8--	44.0 99.1 84.9
T. P. 114-----	45 13 15.11 71 25 02.76	167 42 0 15	T. P. 113----- T. P. 115-----	36.1 50.5	Ref. Mon. 510-8--	45 12 58.88 71 24 26.76	97 33 141 41 282 53	Ref. Mon. 510-7-- T. P. 138----- T. P. 139-----	217.9 84.9 17.4
T. P. 115-----	45 13 13.47 71 25 02.77	180 15 324 23	T. P. 114----- T. P. 116-----	50.5 67.9	T. P. 139-----	45 12 58.75 71 24 25.97	102 53 135 23 287 14	Ref. Mon. 510-8-- T. P. 138----- T. P. 140-----	17.4 99.1 71.3
T. P. 116-----	45 13 11.68 71 25 00.96	144 23 309 48	T. P. 115----- T. P. 117-----	67.9 33.9	T. P. 140-----	45 12 58.07 71 24 22.85	107 14 235 12	T. P. 139----- T. P. 141-----	71.3 29.2
T. P. 117-----	45 13 10.98 71 24 59.77	129 48 344 25	T. P. 116----- T. P. 118-----	33.9 75.9	T. P. 141-----	45 12 58.61 71 24 21.75	55 12 318 43	T. P. 140----- T. P. 142-----	29.2 28.9
T. P. 118-----	45 13 08.61 71 24 58.83	164 25 45 03	T. P. 117----- T. P. 119-----	75.9 28.0	T. P. 142-----	45 12 57.91 71 24 20.88	138 43 291 21	T. P. 141----- T. P. 143-----	28.9 19.7
T. P. 119-----	45 13 07.97 71 24 59.74	225 03 23 49	T. P. 118----- T. P. 120-----	28.0 15.7	T. P. 143-----	45 12 57.68 71 24 20.04	111 21 330 10	T. P. 142----- T. P. 144-----	19.7 48.1
T. P. 120-----	45 13 07.50 71 25 00.03	203 49 325 47	T. P. 119----- T. P. 121-----	15.7 41.4	T. P. 144-----	45 12 56.33 71 24 18.94	150 10 282 03	T. P. 143----- T. P. 145-----	48.1 74.8
T. P. 121-----	45 13 06.39 71 24 58.96	41 23 145 47 290 30	Ref. Mon. 510-4-- T. P. 120----- T. P. 122-----	44.4 41.4 16.6	T. P. 145-----	45 12 55.82 71 24 15.59	102 03 313 34	T. P. 144----- T. P. 146-----	74.8 19.5
Ref. Mon. 510-4--	45 13 05.31 71 25 00.30	185 06 221 23 238 36	Ridge----- T. P. 121----- T. P. 122-----	237.2 44.4 52.6	T. P. 146-----	45 12 55.39 71 24 14.94	133 34 270 32	T. P. 145----- T. P. 147-----	19.5 36.3
T. P. 122-----	45 13 06.19 71 24 58.25	58 36 110 30 318 15	Ref. Mon. 510-4-- T. P. 121----- T. P. 123-----	52.6 16.6 31.6	T. P. 147-----	45 12 55.38 71 24 13.28	90 32 337 57 232 10	T. P. 146----- T. P. 148----- Ref. Mon. 510-9--	36.3 112.6 27.7
T. P. 123-----	45 13 05.43 71 24 57.29	138 15 284 02	T. P. 122----- T. P. 124-----	31.6 20.4	Ref. Mon. 510-9--	45 12 55.93 71 24 12.28	52 10 341 57 350 29	T. P. 147----- Ref. Mon. 510-10-- T. P. 148-----	27.7 310.8 123.1
T. P. 124-----	45 13 05.27 71 24 56.38	104 02 297 38	T. P. 123----- T. P. 125-----	20.4 83.3	T. P. 148-----	45 12 52.00 71 24 11.34	157 57 170 29 295 59	T. P. 147----- Ref. Mon. 510-9-- T. P. 149-----	112.6 123.1 36.0
T. P. 125-----	45 13 04.02 71 24 52.99	31 33 117 38 308 41	Ref. Mon. 510-5-- T. P. 124----- T. P. 126-----	78.9 83.3 47.1	T. P. 149-----	45 12 51.49 71 24 09.86	115 59 349 52	T. P. 148----- T. P. 150-----	36.0 54.1
Ref. Mon. 510-5--	45 13 01.84 71 24 54.88	211 33 270 18	T. P. 125----- Ref. Mon. 510-6--	78.9 246.7	T. P. 150-----	45 12 49.76 71 24 09.42	169 52 78 29	T. P. 149----- T. P. 151-----	54.1 18.1
T. P. 126-----	45 13 03.07 71 24 51.30	128 41 276 02	T. P. 125----- T. P. 127-----	47.1 46.1	T. P. 151-----	45 12 49.64 71 24 10.23	258 29 322 14	T. P. 150----- T. P. 152-----	18.1 38.1
T. P. 127-----	45 13 02.91 71 24 49.20	96 02 242 21	T. P. 126----- T. P. 128-----	46.1 24.1	T. P. 152-----	45 12 48.66 71 24 09.16	142 14 290 54	T. P. 151----- T. P. 153-----	38.1 20.4
T. P. 128-----	45 13 03.27 71 24 48.22	62 21 291 34	T. P. 127----- T. P. 129-----	24.1 62.7	T. P. 153-----	45 12 48.43 71 24 08.29	110 54 29 31	T. P. 152----- T. P. 154-----	20.4 33.9
T. P. 129-----	45 13 02.52 71 24 45.54	111 34 274 37	T. P. 128----- T. P. 130-----	62.7 31.1	T. P. 154-----	45 12 47.48 71 24 09.05	209 31 3 48	T. P. 153----- T. P. 155-----	33.9 46.4
T. P. 130-----	45 13 02.44 71 24 44.12	94 37 228 14 328 33	T. P. 129----- T. P. 131----- Ref. Mon. 510-6--	31.1 51.1 23.3	T. P. 155-----	45 12 45.98 71 24 09.19	183 48 248 11 350 24	T. P. 154----- Ref. Mon. 510-10-- T. P. 156-----	46.4 31.4 45.6
Ref. Mon. 510-6--	45 13 01.80 71 24 43.57	90 18 148 33 205 41	Ref. Mon. 510-5-- T. P. 130----- T. P. 131-----	246.7 23.3 59.8	Ref. Mon. 510-10--	45 12 46.35 71 24 07.86	20 51 68 11 324 35	T. P. 156----- T. P. 155----- Ref. Mon. 510-11--	60.6 31.4 188.0
T. P. 131-----	45 13 03.55 71 24 42.38	25 41 48 14 290 24	Ref. Mon. 510-6-- T. P. 130----- T. P. 132-----	59.8 51.1 36.5	T. P. 156-----	45 12 44.52 71 24 08.85	170 24 200 51 324 02	T. P. 155----- Ref. Mon. 510-10-- T. P. 157-----	45.6 60.6 45.9
T. P. 132-----	45 13 03.14 71 24 40.81	110 24 319 50	T. P. 131----- T. P. 133-----	36.5 28.7	T. P. 157-----	45 12 43.32 71 24 07.61	144 02 1 17	T. P. 156----- T. P. 158-----	45.9 59.1
T. P. 133-----	45 13 02.43 71 24 39.96	139 50 271 44	T. P. 132----- T. P. 134-----	28.7 11.9	T. P. 158-----	45 12 41.41 71 24 07.69	181 17 313 57	T. P. 157----- T. P. 159-----	59.1 66.3
T. P. 134-----	45 13 02.42 71 24 39.41	91 44 338 48	T. P. 133----- T. P. 135-----	11.9 30.0	T. P. 159-----	45 12 39.92 71 24 05.50	133 57 231 23 332 17	T. P. 158----- Ref. Mon. 510-11-- T. P. 160-----	66.3 73.1 83.9
T. P. 135-----	45 13 01.51 71 24 38.91	158 48 292 14	T. P. 134----- T. P. 136-----	30.0 81.9	Ref. Mon. 510-11--	45 12 41.39 71 24 02.87	51 23 144 35	T. P. 159----- Ref. Mon. 510-10--	73.1 188.0
T. P. 136-----	45 13 00.50 71 24 35.44	51 04 112 14 255 36	Ref. Mon. 510-7-- T. P. 135----- T. P. 137-----	33.9 81.9 96.7	T. P. 160-----	45 12 37.51 71 24 03.71	152 17 289 26	T. P. 159----- T. P. 161-----	83.9 23.8
Ref. Mon. 510-7--	45 12 59.81 71 24 36.65	112 07 231 04	Ref. Mon. 510-6-- T. P. 136-----	163.0 33.9					



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° '				° ' "	° '		
T. P. 161.....	45 12 37.25 71 24 02.68	109 26 0 43	T. P. 160..... T. P. 162.....	23.8 27.5	T. P. 189.....	45 12 16.50 71 23 54.04	181 38 347 56	T. P. 188..... T. P. 190.....	64.2 55.1
T. P. 162.....	45 12 36.36 71 24 02.69	180 43 344 55	T. P. 161..... T. P. 163.....	27.5 28.6	T. P. 190.....	45 12 14.75 71 23 53.51	167 56 329 02	T. P. 189..... T. P. 191.....	55.1 39.1
T. P. 163.....	45 12 35.47 71 24 02.35	164 55 253 33	T. P. 162..... T. P. 164.....	28.6 24.4	T. P. 191.....	45 12 13.66 71 23 52.59	149 02 352 26	T. P. 190..... T. P. 192.....	39.1 21.5
T. P. 164.....	45 12 35.69 71 24 01.28	73 33 349 38	T. P. 163..... T. P. 165.....	24.4 14.6	T. P. 192.....	45 12 12.97 71 23 52.46	172 26 12 26 300 03	T. P. 191..... T. P. 192..... Ref. Mon. 510-14..	21.5 42.9 25.3
T. P. 165.....	45 12 35.23 71 24 01.16	169 38 55 38	T. P. 164..... T. P. 166.....	14.6 43.2	Ref. Mon. 510-14..	45 12 12.56 71 23 51.46	46 48 120 03 174 32	T. P. 193..... T. P. 192..... Ref. Mon. 510-13..	42.7 25.3 205.2
T. P. 166.....	45 12 34.44 71 24 02.79	235 38 295 57	T. P. 165..... T. P. 167.....	43.2 35.5	T. P. 193.....	45 12 11.62 71 23 52.88	192 26 226 48 41 07	T. P. 192..... Ref. Mon. 510-14.. T. P. 194.....	42.9 42.7 49.2
T. P. 167.....	45 12 33.94 71 24 01.33	115 57 9 36	T. P. 166..... T. P. 168.....	35.5 28.7	T. P. 194.....	45 12 10.41 71 23 54.36	221 07 34 35	T. P. 193..... T. P. 195.....	49.2 42.2
T. P. 168.....	45 12 33.02 71 24 01.55	189 36 261 39	T. P. 167..... T. P. 169.....	28.7 26.8	T. P. 195.....	45 12 09.29 71 23 55.46	214 35 42 20	T. P. 194..... T. P. 196.....	42.2 49.5
T. P. 169.....	45 12 33.15 71 24 00.34	81 39 340 58	T. P. 168..... T. P. 170.....	26.8 38.1	T. P. 196.....	45 12 08.10 71 23 56.99	222 20 70 40 48 45	T. P. 195..... T. P. 197..... Ref. Mon. 510-15..	49.5 57.4 42.5
T. P. 170.....	45 12 31.98 71 23 59.77	160 58 278 18	T. P. 169..... T. P. 171.....	38.1 33.4	Ref. Mon. 510-15..	45 12 07.20 71 23 58.46	112 05 222 41 228 45	T. P. 197..... Ref. Mon. 510-14.. T. P. 196.....	24.0 225.2 42.5
T. P. 171.....	45 12 31.82 71 23 58.26	98 18 355 12	T. P. 170..... T. P. 172.....	33.4 28.7	T. P. 197.....	45 12 07.49 71 23 59.48	250 40 292 05 92 45	T. P. 196..... Ref. Mon. 510-15.. T. P. 198.....	57.4 24.0 41.1
T. P. 172.....	45 12 30.89 71 23 58.15	175 12 59 48	T. P. 171..... T. P. 173.....	28.7 31.2	T. P. 198.....	45 12 07.55 71 24 01.36	272 45 34 24	T. P. 197..... T. P. 199.....	41.1 58.2
T. P. 173.....	45 12 30.38 71 23 59.38	239 48 348 42	T. P. 172..... T. P. 174.....	31.2 63.2	T. P. 199.....	45 12 06.00 71 24 02.87	214 24 316 24	T. P. 198..... T. P. 200.....	58.2 13.3
T. P. 174.....	45 12 28.37 71 23 58.81	168 42 233 34	T. P. 173..... T. P. 175.....	63.2 15.5	T. P. 200.....	45 12 05.69 71 24 02.45	136 24 343 50	T. P. 199..... T. P. 201.....	13.3 18.7
T. P. 175.....	45 12 28.67 71 23 58.24	53 34 288 35 309 42	T. P. 174..... Ref. Mon. 510-12.. T. P. 176.....	15.5 43.9 26.6	T. P. 201.....	45 12 05.11 71 24 02.21	163 50 10 25	T. P. 200..... T. P. 202.....	18.7 15.3
Ref. Mon. 510-12..	45 12 28.22 71 23 56.33	81 51 108 35 342 45	T. P. 176..... T. P. 175..... Ref. Mon. 510-13..	21.3 43.9 292.1	T. P. 202.....	45 12 04.62 71 24 02.34	190 25 318 57	T. P. 201..... T. P. 203.....	15.3 14.1
T. P. 176.....	45 12 28.12 71 23 57.30	129 42 47 02 261 51	T. P. 175..... T. P. 177..... Ref. Mon. 510-12..	26.6 26.3 21.3	T. P. 203.....	45 12 04.27 71 24 01.91	138 57 6 24	T. P. 202..... T. P. 204.....	14.1 12.4
T. P. 177.....	45 12 27.54 71 23 58.18	227 02 321 19	T. P. 176..... T. P. 178.....	26.3 16.0	T. P. 204.....	45 12 03.87 71 24 01.97	186 24 309 40	T. P. 203..... T. P. 205.....	12.4 11.8
T. P. 178.....	45 12 27.14 71 23 57.72	141 19 351 40	T. P. 177..... T. P. 179.....	16.0 53.6	T. P. 205.....	45 12 03.63 71 24 01.55	129 40 8 12	T. P. 204..... T. P. 206.....	11.8 23.0
T. P. 179.....	45 12 25.42 71 23 57.36	171 40 282 44	T. P. 178..... T. P. 180.....	53.6 31.3	T. P. 206.....	45 12 02.89 71 24 01.70	188 12 6 56	T. P. 205..... T. P. 207.....	23.0 44.0
T. P. 180.....	45 12 25.20 71 23 55.96	102 44 336 02	T. P. 179..... T. P. 181.....	31.3 23.9	T. P. 207.....	45 12 01.48 71 24 01.94	186 56 58 09	T. P. 206..... T. P. 208.....	44.0 46.4
T. P. 181.....	45 12 24.49 71 23 55.52	156 02 28 05	T. P. 180..... T. P. 182.....	23.9 26.7	T. P. 208.....	45 12 00.69 71 24 03.74	238 09 70 38	T. P. 207..... T. P. 209.....	46.4 39.7
T. P. 182.....	45 12 23.73 71 23 56.10	208 05 303 22	T. P. 181..... T. P. 183.....	26.7 18.2	T. P. 209.....	45 12 00.26 71 24 05.45	250 38 114 17	T. P. 208..... T. P. 210.....	39.7 32.5
T. P. 183.....	45 12 23.41 71 23 55.40	123 22 358 55	T. P. 182..... T. P. 184.....	18.2 37.1	T. P. 210.....	45 12 00.69 71 24 06.81	294 17 192 30	T. P. 209..... T. P. 211.....	32.5 22.4
T. P. 184.....	45 12 22.37 71 23 55.21	178 55 303 03	T. P. 183..... T. P. 185.....	37.1 28.0	T. P. 211.....	45 12 01.40 71 24 06.59	12 30 142 19	T. P. 210..... T. P. 212.....	22.4 15.2
T. P. 185.....	45 12 21.72 71 23 54.29	123 03 5 53	T. P. 184..... T. P. 186.....	28.0 35.6	T. P. 212.....	45 12 01.79 71 24 07.02	322 19 57 36	T. P. 211..... T. P. 213.....	15.2 22.9
T. P. 186.....	45 12 20.57 71 23 54.46	185 53 330 41	T. P. 185..... T. P. 187.....	35.6 38.5	T. P. 213.....	45 12 01.39 71 24 07.91	237 36 104 08	T. P. 212..... T. P. 214.....	22.9 19.7
T. P. 187.....	45 12 19.48 71 23 53.59	150 41 16 17	T. P. 186..... T. P. 188.....	38.5 28.8	T. P. 214.....	45 12 01.55 71 24 08.79	284 08 91 38	T. P. 213..... T. P. 215.....	19.7 24.5
T. P. 188.....	45 12 18.58 71 23 53.96	196 17 1 38 241 55	T. P. 187..... T. P. 189..... Ref. Mon. 510-13..	28.8 64.2 39.6	T. P. 215.....	45 12 01.57 71 24 09.91	271 38 5 17	T. P. 214..... T. P. 216.....	24.5 24.6
Ref. Mon. 510-13..	45 12 19.18 71 23 52.36	61 55 354 32	T. P. 188..... Ref. Mon. 510-14..	39.6 205.2					

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 216-----	45 12 00.78 71 24 10.01	185 17 54 50	T. P. 215----- T. P. 217-----	24.6 67.7	T. P. 244-----	45 11 42.96 71 24 17.58	152 11 338 51	T. P. 243----- T. P. 245-----	44.3 25.6
T. P. 217-----	45 11 59.52 71 24 12.55	234 50 21 55	T. P. 216----- T. P. 218-----	67.7 21.6	T. P. 245-----	45 11 42.19 71 24 17.15	158 51 39 50	T. P. 244----- T. P. 246-----	25.6 54.2
T. P. 218-----	45 11 58.87 71 24 12.92	201 55 343 02	T. P. 217----- T. P. 219-----	21.6 26.3	T. P. 246-----	45 11 40.84 71 24 18.74	219 50 29 24	T. P. 245----- T. P. 247-----	54.2 47.7
T. P. 219-----	45 11 58.05 71 24 12.57	163 02 35 36	T. P. 218----- T. P. 220-----	26.3 21.6	T. P. 247-----	45 11 39.49 71 24 19.81	209 24 10 44	T. P. 246----- T. P. 248-----	47.7 33.9
T. P. 220-----	45 11 57.48 71 24 13.15	215 36 291 55	T. P. 219----- T. P. 221-----	21.6 26.8	T. P. 248-----	45 11 38.41 71 24 20.10	190 44 308 28 351 09	T. P. 247----- Ref. Mon. 510-18... T. P. 249-----	33.9 68.9 42.1
T. P. 221-----	45 11 57.15 71 24 12.01	111 55 53 41 335 55	T. P. 220----- T. P. 222----- Ref. Mon. 510-16...	26.8 35.9 98.2	Ref. Mon. 510-18	45 11 37.03 71 24 17.63	44 31 91 32 128 28	Ref. Mon. 510-19... T. P. 249----- T. P. 248-----	439.8 47.5 68.9
Ref. Mon. 510-16...	45 11 54.25 71 24 10.17	3 07 134 44 155 55	Ref. Mon. 510-17... T. P. 222----- T. P. 221-----	229.0 97.1 98.2	T. P. 249-----	45 11 37.07 71 24 19.80	171 09 26 38 271 32	T. P. 248----- T. P. 250----- Ref. Mon. 510-18...	42.1 36.4 47.5
T. P. 222-----	45 11 56.47 71 24 13.33	233 41 30 41 314 44	T. P. 221----- T. P. 223----- Ref. Mon. 510-16...	35.9 29.4 97.1	T. P. 250-----	45 11 36.02 71 24 20.55	206 38 55 33	T. P. 249----- T. P. 251-----	36.4 45.7
T. P. 223-----	45 11 55.65 71 24 14.02	210 41 49 40	T. P. 222----- T. P. 224-----	29.4 23.7	T. P. 251-----	45 11 35.18 71 24 22.28	235 33 83 13	T. P. 250----- T. P. 252-----	45.7 40.2
T. P. 224-----	45 11 55.15 71 24 14.85	229 40 99 05	T. P. 223----- T. P. 225-----	23.7 18.4	T. P. 252-----	45 11 35.03 71 24 24.11	263 13 148 47	T. P. 251----- T. P. 253-----	40.2 21.0
T. P. 225-----	45 11 55.25 71 24 15.68	279 05 76 17	T. P. 224----- T. P. 226-----	18.4 26.7	T. P. 253-----	45 11 35.61 71 24 24.61	328 47 62 10	T. P. 252----- T. P. 254-----	21.0 25.1
T. P. 226-----	45 11 55.05 71 24 16.87	256 17 347 35	T. P. 225----- T. P. 227-----	26.7 12.6	T. P. 254-----	45 11 35.23 71 24 25.62	242 10 19 57	T. P. 253----- T. P. 255-----	25.1 29.4
T. P. 227-----	45 11 54.65 71 24 16.74	167 35 55 31	T. P. 226----- T. P. 228-----	12.6 41.3	T. P. 255-----	45 11 34.33 71 24 26.08	199 57 342 16	T. P. 254----- T. P. 256-----	29.4 42.6
T. P. 228-----	45 11 53.89 71 24 18.30	235 31 22 46	T. P. 227----- T. P. 229-----	41.3 26.0	T. P. 256-----	45 11 33.01 71 24 25.48	162 16 357 09	T. P. 255----- T. P. 257-----	42.6 51.1
T. P. 229-----	45 11 53.11 71 24 18.76	202 46 56 56	T. P. 228----- T. P. 230-----	26.0 70.3	T. P. 257-----	45 11 31.36 71 24 25.36	177 09 75 46	T. P. 256----- T. P. 258-----	51.1 39.1
T. P. 230-----	45 11 51.87 71 24 21.46	236 56 98 08	T. P. 229----- T. P. 231-----	70.3 36.5	T. P. 258-----	45 11 31.05 71 24 27.10	255 46 46 04	T. P. 257----- T. P. 259-----	39.1 49.9
T. P. 231-----	45 11 52.04 71 24 23.12	278 08 354 13	T. P. 230----- T. P. 232-----	36.5 24.4	T. P. 259-----	45 11 29.93 71 24 28.75	226 04 353 47	T. P. 258----- T. P. 260-----	49.9 23.6
T. P. 232-----	45 11 51.25 71 24 23.01	174 13 295 57	T. P. 231----- T. P. 233-----	24.4 23.6	T. P. 260-----	45 11 29.17 71 24 28.63	173 47 47 44	T. P. 259----- T. P. 261-----	23.6 24.1
T. P. 233-----	45 11 50.91 71 24 22.04	115 57 332 13	T. P. 232----- T. P. 234-----	23.6 20.0	T. P. 261-----	45 11 28.64 71 24 29.45	227 44 337 28	T. P. 260----- T. P. 262-----	24.1 85.7
T. P. 234-----	45 11 50.34 71 24 21.61	152 13 6 32	T. P. 233----- T. P. 235-----	20.0 33.2	T. P. 262-----	45 11 26.08 71 24 27.94	106 16 157 28 292 57	Ref. Mon. 510-19... T. P. 261----- T. P. 263-----	86.6 85.7 19.8
T. P. 235-----	45 11 49.27 71 24 21.78	186 32 268 01	T. P. 234----- T. P. 236-----	33.2 25.9	Ref. Mon. 510-19...	45 11 26.87 71 24 31.75	58 54 286 16	Ref. Mon. 510-20... T. P. 262-----	740.7 86.6
T. P. 236-----	45 11 49.30 71 24 20.60	88 01 341 09	T. P. 235----- T. P. 237-----	25.9 18.1	T. P. 263-----	45 11 25.83 71 24 27.10	112 57 326 15	T. P. 262----- T. P. 264-----	19.8 18.0
T. P. 237-----	45 11 48.75 71 24 20.33	161 09 293 00	T. P. 236----- T. P. 238-----	18.1 26.8	T. P. 264-----	45 11 25.35 71 24 26.64	146 15 11 54	T. P. 263----- T. P. 265-----	18.0 38.7
T. P. 238-----	45 11 48.41 71 24 19.19	113 00 30 51 284 36	T. P. 237----- T. P. 239----- Ref. Mon. 510-17...	26.8 42.0 190.7	T. P. 265-----	45 11 24.12 71 24 27.01	191 54 28 08	T. P. 264----- T. P. 266-----	38.7 54.8
Ref. Mon. 510-17...	45 11 46.84 71 24 10.74	104 36 183 07	T. P. 238----- Ref. Mon. 510-16...	190.7 229.0	T. P. 266-----	45 11 22.56 71 24 28.19	208 08 71 02	T. P. 265----- T. P. 267-----	54.8 37.7
T. P. 239-----	45 11 47.24 71 24 20.18	210 51 357 57	T. P. 238----- T. P. 240-----	42.0 39.4	T. P. 267-----	45 11 22.16 71 24 29.82	251 02 30 31	T. P. 266----- T. P. 268-----	37.7 51.3
T. P. 240-----	45 11 45.96 71 24 20.12	177 57 296 46	T. P. 239----- T. P. 241-----	39.4 11.0	T. P. 268-----	45 11 20.73 71 24 31.02	210 31 33 36	T. P. 267----- T. P. 269-----	51.3 63.2
T. P. 241-----	45 11 45.80 71 24 19.67	116 46 356 34	T. P. 240----- T. P. 242-----	11.0 20.1	T. P. 269-----	45 11 19.02 71 24 32.62	213 36 25 44	T. P. 268----- T. P. 270-----	63.2 53.5
T. P. 242-----	45 11 45.15 71 24 19.61	176 34 319 58	T. P. 241----- T. P. 243-----	20.1 37.2	T. P. 270-----	45 11 17.46 71 24 33.69	205 44 18 59	T. P. 269----- T. P. 271-----	53.5 44.2
T. P. 243-----	45 11 44.23 71 24 18.51	139 58 332 11	T. P. 242----- T. P. 244-----	37.2 44.3	T. P. 271-----	45 11 16.11 71 24 34.35	198 59 29 59	T. P. 270----- T. P. 272-----	44.2 31.9

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 272.....	45 11 15.21 71 24 35.08	209 59 62 52	T. P. 271..... T. P. 273.....	31.9 38.3	Ref. Mon. 510-24.....	45 10 40.36 71 25 02.65	16 43 289 11	Knoll..... T. P. 297.....	314.3 96.8
T. P. 273.....	45 11 14.64 71 24 36.64	242 52 11 47	T. P. 272..... T. P. 274.....	38.3 40.5	T. P. 298.....	45 10 34.67 71 24 59.03	184 58 23 05	T. P. 297..... T. P. 299.....	144.4 93.4
T. P. 274.....	45 11 13.36 71 24 37.02	191 47 35 38	T. P. 273..... T. P. 275.....	40.5 41.9	T. P. 299.....	45 10 31.89 71 25 00.71	203 05 56 24	T. P. 298..... T. P. 300.....	93.4 47.3
T. P. 275.....	45 11 12.26 71 24 38.14	215 38 46 26	T. P. 274..... T. P. 276.....	41.9 72.9	T. P. 300.....	45 10 31.04 71 25 02.52	236 24 49 39	T. P. 299..... T. P. 301.....	47.3 58.5
T. P. 276.....	45 11 10.63 71 24 40.56	226 26 105 02 82 30	T. P. 275..... Ref. Mon. 510-20..... T. P. 277.....	72.9 457.5 75.4	T. P. 301.....	45 10 29.81 71 25 04.56	292 19 229 39 15 41	Ref. Mon. 510-25..... T. P. 300..... T. P. 302.....	171.6 58.5 115.6
Ref. Mon. 510-20.....	45 11 14.47 71 25 00.80	285 02 342 33	T. P. 276..... Ref. Mon. 510-21.....	457.5 248.6	Ref. Mon. 510-25.....	45 10 27.70 71 24 57.29	112 19 113 25	T. P. 301..... Knoll.....	171.6 226.1
T. P. 277.....	45 11 10.31 71 24 43.98	262 30 58 39	T. P. 276..... T. P. 278.....	75.4 47.9	T. P. 302.....	45 10 26.20 71 25 05.98	195 41 355 13	T. P. 301..... T. P. 303.....	115.6 74.7
T. P. 278.....	45 11 09.50 71 24 45.85	238 39 65 17	T. P. 277..... T. P. 279.....	47.9 94.3	T. P. 303.....	45 10 23.79 71 25 05.69	175 13 55 21	T. P. 302..... T. P. 304.....	74.7 52.4
T. P. 279.....	45 11 08.23 71 24 49.78	245 17 53 39	T. P. 278..... T. P. 280.....	94.3 48.2	T. P. 304.....	45 10 22.82 71 25 07.67	235 21 343 06	T. P. 303..... T. P. 305.....	52.4 92.0
T. P. 280.....	45 11 07.30 71 24 51.55	233 39 43 29	T. P. 279..... T. P. 281.....	48.2 75.4	T. P. 305.....	45 10 19.97 71 25 06.45	163 06 43 57	T. P. 304..... T. P. 306.....	92.0 83.6
T. P. 281.....	45 11 05.53 71 24 53.93	223 29 6 23	T. P. 280..... T. P. 282.....	75.4 86.9	T. P. 306.....	45 10 18.02 71 25 09.11	223 57 19 22	T. P. 305..... T. P. 307.....	83.6 42.7
T. P. 282.....	45 11 02.73 71 24 54.37	186 23 152 15 15 31	T. P. 281..... Ref. Mon. 510-21..... T. P. 283.....	86.9 141.4 87.0	T. P. 307.....	45 10 16.71 71 25 09.76	199 22 339 47	T. P. 306..... T. P. 308.....	42.7 82.6
Ref. Mon. 510-21.....	45 11 06.79 71 24 57.39	15 05 332 15	Ref. Mon. 510-22..... T. P. 282.....	350.7 141.4	T. P. 308.....	45 10 14.20 71 25 08.45	159 47 31 59	T. P. 307..... T. P. 309.....	82.6 31.9
T. P. 283.....	45 11 00.02 71 24 55.43	195 31 27 04	T. P. 282..... T. P. 284.....	87.0 95.4	T. P. 309.....	45 10 13.32 71 25 09.22	211 59 76 58	T. P. 308..... T. P. 310.....	31.9 23.9
T. P. 284.....	45 10 57.27 71 24 57.42	207 04 347 34	T. P. 283..... T. P. 285.....	95.4 53.3	T. P. 310.....	45 10 13.15 71 25 10.29	256 58 37 25	T. P. 309..... T. P. 311.....	23.9 32.0
T. P. 285.....	45 10 55.58 71 24 56.90	167 34 94 07 10 49	T. P. 284..... Ref. Mon. 510-22..... T. P. 286.....	53.3 102.2 95.7	T. P. 311.....	45 10 12.33 71 25 11.18	217 25 114 16 68 11	T. P. 310..... Ref. Mon. 510-26..... T. P. 312.....	32.0 79.2 40.4
Ref. Mon. 510-22.....	45 10 55.82 71 25 01.57	274 07 348 13	T. P. 285..... Ref. Mon. 510-23.....	102.2 240.5	Ref. Mon. 510-26.....	45 10 13.38 71 25 14.48	119 42 294 16	Robert's West Base..... T. P. 311.....	279.1 79.2
T. P. 286.....	45 10 52.53 71 24 57.72	190 49 21 43	T. P. 285..... T. P. 287.....	95.7 58.7	T. P. 312.....	45 10 11.84 71 25 12.89	248 11 8 26	T. P. 311..... T. P. 313.....	40.4 19.4
T. P. 287.....	45 10 50.76 71 24 58.72	201 43 322 21	T. P. 286..... T. P. 288.....	58.7 58.1	T. P. 313.....	45 10 11.22 71 25 13.02	188 26 58 54	T. P. 312..... T. P. 314.....	19.4 28.1
T. P. 288.....	45 10 49.27 71 24 57.09	142 21 261 43	T. P. 287..... T. P. 289.....	58.1 58.5	T. P. 314.....	45 10 10.75 71 25 14.12	238 54 23 12	T. P. 313..... T. P. 315.....	28.1 58.7
T. P. 289.....	45 10 49.55 71 24 54.44	68 31 81 43 334 08	Ref. Mon. 510-23..... T. P. 288..... T. P. 290.....	114.5 58.5 35.1	T. P. 315.....	45 10 09.00 71 25 15.18	203 12 59 40	T. P. 314..... T. P. 316.....	58.7 68.5
Ref. Mon. 510-23.....	45 10 48.19 71 24 59.32	168 13 248 31	Ref. Mon. 510-22..... T. P. 289.....	240.5 114.5	T. P. 316.....	45 10 07.88 71 25 17.89	239 40 43 29	T. P. 315..... T. P. 317.....	68.5 39.8
T. P. 290.....	45 10 48.53 71 24 53.74	154 08 33 00	T. P. 289..... T. P. 291.....	35.1 44.2	T. P. 317.....	45 10 06.94 71 25 19.14	223 29 2 46	T. P. 316..... T. P. 318.....	39.8 34.6
T. P. 291.....	45 10 47.33 71 24 54.84	213 00 341 19	T. P. 290..... T. P. 292.....	44.2 32.2	T. P. 318.....	45 10 05.82 71 25 19.22	182 46 40 37 6 39	T. P. 317..... T. P. 319..... Ref. Mon. 510-27.....	34.6 33.9 30.0
T. P. 292.....	45 10 46.34 71 24 54.37	161 19 326 30	T. P. 291..... T. P. 293.....	32.2 62.0	Ref. Mon. 510-27.....	45 10 04.86 71 25 19.38	53 00 186 39	King..... T. P. 318.....	433.7 30.0
T. P. 293.....	45 10 44.67 71 24 52.80	146 30 42 38	T. P. 292..... T. P. 294.....	62.0 57.1	T. P. 319.....	45 10 04.99 71 25 20.23	220 37 22 13	T. P. 318..... T. P. 320.....	33.9 69.7
T. P. 294.....	45 10 43.31 71 24 54.57	222 38 36 24	T. P. 293..... T. P. 295.....	57.1 28.6	T. P. 320.....	45 10 02.90 71 25 21.44	202 13 35 16	T. P. 319..... T. P. 321.....	69.7 38.7
T. P. 295.....	45 10 42.57 71 24 55.35	216 24 49 01	T. P. 294..... T. P. 296.....	28.6 45.8	T. P. 321.....	45 10 01.88 71 25 22.46	215 16 85 31	T. P. 320..... T. P. 322.....	38.7 18.2
T. P. 296.....	45 10 41.58 71 24 56.94	229 01 25 32	T. P. 295..... T. P. 297.....	45.8 77.3	T. P. 322.....	45 10 01.83 71 25 23.29	265 31 7 44	T. P. 321..... T. P. 323.....	18.2 12.0
T. P. 297.....	45 10 39.33 71 24 58.46	205 32 109 11 4 58	T. P. 296..... Ref. Mon. 510-24..... T. P. 298.....	77.3 96.8 144.4	T. P. 323.....	45 10 01.45 71 25 23.37	187 44 67 22	T. P. 322..... T. P. 324.....	12.0 32.0
					T. P. 324.....	45 10 01.05 71 25 24.72	247 22 8 08	T. P. 323..... T. P. 325.....	32.0 54.0



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 325.....	45 09 59.32 71 25 25.07	188 08 97 14	T. P. 324..... T. P. 326.....	54.0 43.3	T. P. 355.....	45 09 36.93 71 25 27.30	163 31 44 54	T. P. 354..... T. P. 356.....	14.1 46.8
T. P. 326.....	45 09 59.50 71 25 27.04	277 14 54 17	T. P. 325..... T. P. 327.....	43.3 35.2	T. P. 356.....	45 09 35.86 71 25 28.81	224 54 301 20 90 32	T. P. 355..... T. P. 357..... Ref. Mon. 511-1.....	46.8 41.6 42.0
T. P. 327.....	45 09 58.83 71 25 28.35	234 17 104 34	T. P. 326..... T. P. 328.....	35.2 22.1	Ref. Mon. 511-1.....	45 09 35.85 71 25 30.74	155 26 270 32	Culvert..... T. P. 356.....	189.0 42.0
T. P. 328.....	45 09 59.01 71 25 29.33	284 34 73 24	T. P. 327..... T. P. 329.....	22.1 38.4	T. P. 357.....	45 09 35.14 71 25 27.20	121 20 22 47	T. P. 356..... T. P. 358.....	41.6 116.9
T. P. 329.....	45 09 58.66 71 25 31.02	253 24 355 54	T. P. 328..... T. P. 330.....	38.4 27.8	T. P. 358.....	45 09 31.65 71 25 29.27	202 47 45 20	T. P. 357..... T. P. 359.....	116.9 85.3
T. P. 330.....	45 09 57.76 71 25 30.93	175 54 53 30 241 14	T. P. 329..... T. P. 331..... Ref. Mon. 511.....	27.8 23.1 17.4	T. P. 359.....	45 09 29.71 71 25 32.05	225 20 25 16	T. P. 358..... T. P. 360.....	85.3 48.8
Ref. Mon. 511.....	45 09 58.03 71 25 30.23	61 14 65 26	T. P. 330..... King.....	17.4 120.4	T. P. 360.....	45 09 28.28 71 25 33.00	205 16 86 26	T. P. 359..... T. P. 361.....	48.8 36.0
T. P. 331.....	45 09 57.31 71 25 31.77	233 30 345 00	T. P. 330..... T. P. 332.....	23.1 102.6	T. P. 361.....	45 09 28.20 71 25 34.65	266 26 352 07 12 57	T. P. 360..... T. P. 362..... Ref. Mon. 511-2.....	36.0 25.7 23.8
T. P. 332.....	45 09 54.10 71 25 30.55	165 00 327 44	T. P. 331..... T. P. 333.....	102.6 39.3	Ref. Mon. 511-2.....	45 09 27.45 71 25 34.89	17 47 192 57	Ref. Mon. 511-3..... T. P. 361.....	110.4 23.8
T. P. 333.....	45 09 53.02 71 25 29.59	147 44 282 57	T. P. 332..... T. P. 334.....	39.3 27.8	T. P. 362.....	45 09 27.38 71 25 34.48	172 07 297 42	T. P. 361..... T. P. 363.....	25.7 62.2
T. P. 334.....	45 09 52.82 71 25 28.35	102 57 206 35	T. P. 333..... T. P. 335.....	27.8 48.2	T. P. 363.....	45 09 26.44 71 25 31.96	117 42 21 54	T. P. 362..... T. P. 364.....	62.2 49.3
T. P. 335.....	45 09 54.21 71 25 27.36	26 35 330 28	T. P. 334..... T. P. 336.....	48.2 43.1	T. P. 364.....	45 09 24.96 71 25 32.80	201 54 294 05	T. P. 363..... T. P. 365.....	49.3 32.0
T. P. 336.....	45 09 53.00 71 25 26.39	150 28 34 26	T. P. 335..... T. P. 337.....	43.1 34.9	T. P. 365.....	45 09 24.54 71 25 31.46	114 05 13 10	T. P. 364..... T. P. 366.....	32.0 17.0
T. P. 337.....	45 09 52.07 71 25 27.29	214 26 342 38	T. P. 336..... T. P. 338.....	34.9 60.6	T. P. 366.....	45 09 24.00 71 25 31.64	193 10 81 46	T. P. 365..... T. P. 367.....	17.0 41.0
T. P. 338.....	45 09 50.20 71 25 26.46	162 38 70 11	T. P. 337..... T. P. 339.....	60.6 59.1	T. P. 367.....	45 09 23.81 71 25 33.50	261 46 350 03	T. P. 366..... T. P. 368.....	41.0 50.0
T. P. 339.....	45 09 49.55 71 25 29.01	250 11 14 17	T. P. 338..... T. P. 340.....	59.1 65.8	T. P. 368.....	45 09 22.21 71 25 33.10	170 03 66 24	T. P. 367..... T. P. 369.....	50.0 26.3
T. P. 340.....	45 09 47.48 71 25 29.76	194 17 337 22	T. P. 339..... T. P. 341.....	65.8 66.8	T. P. 369.....	45 09 21.87 71 25 34.20	246 24 124 40	T. P. 368..... T. P. 370.....	26.3 48.9
T. P. 341.....	45 09 45.48 71 25 28.58	157 22 298 57	T. P. 340..... T. P. 342.....	66.8 29.7	T. P. 370.....	45 09 22.77 71 25 36.04	304 40 20 38	T. P. 369..... T. P. 371.....	48.9 27.7
T. P. 342.....	45 09 45.01 71 25 27.39	118 57 28 46	T. P. 341..... T. P. 343.....	29.7 36.0	T. P. 371.....	45 09 21.93 71 25 36.49	181 12 200 38 306 11	Ref. Mon. 511-3..... T. P. 370..... T. P. 372.....	65.3 27.7 45.8
T. P. 343.....	45 09 43.99 71 25 28.18	208 46 318 06	T. P. 342..... T. P. 344.....	36.0 47.6	Ref. Mon. 511-3.....	45 09 24.04 71 25 36.43	1 12 197 47	T. P. 371..... Ref. Mon. 511-2.....	65.3 110.4
T. P. 344.....	45 09 42.84 71 25 26.72	138 06 23 30	T. P. 343..... T. P. 345.....	47.6 24.6	T. P. 372.....	45 09 21.05 71 25 34.81	126 11 32 19	T. P. 371..... T. P. 373.....	45.8 55.9
T. P. 345.....	45 09 42.11 71 25 27.17	203 30 71 32	T. P. 344..... T. P. 346.....	24.6 31.2	T. P. 373.....	45 09 19.52 71 25 36.18	212 19 342 17	T. P. 372..... T. P. 374.....	55.9 46.9
T. P. 346.....	45 09 41.79 71 25 28.53	251 32 13 40	T. P. 345..... T. P. 347.....	31.2 27.4	T. P. 374.....	45 09 18.07 71 25 35.53	162 17 22 31	T. P. 373..... T. P. 375.....	46.9 56.7
T. P. 347.....	45 09 40.93 71 25 28.83	193 40 354 09	T. P. 346..... T. P. 348.....	27.4 44.2	T. P. 375.....	45 09 16.39 71 25 36.52	202 31 356 10	T. P. 374..... T. P. 376.....	56.7 58.8
T. P. 348.....	45 09 39.51 71 25 28.63	174 09 298 40	T. P. 347..... T. P. 349.....	44.2 50.5	T. P. 376.....	45 09 14.49 71 25 36.34	176 10 8 32	T. P. 375..... T. P. 377.....	58.8 65.8
T. P. 349.....	45 09 38.73 71 25 26.60	118 40 36 33	T. P. 348..... T. P. 350.....	50.5 29.4	T. P. 377.....	45 09 12.38 71 25 36.79	188 32 354 58	T. P. 376..... T. P. 378.....	65.8 41.5
T. P. 350.....	45 09 37.96 71 25 27.40	216 33 122 53	T. P. 349..... T. P. 351.....	29.4 43.0	T. P. 378.....	45 09 11.04 71 25 36.62	174 58 15 42	T. P. 377..... T. P. 379.....	41.5 35.4
T. P. 351.....	45 09 38.72 71 25 29.05	302 53 48 47	T. P. 350..... T. P. 352.....	43.0 22.7	T. P. 379.....	45 09 09.93 71 25 37.06	195 42 31 56	T. P. 378..... T. P. 380.....	35.4 157.6
T. P. 352.....	45 09 38.24 71 25 29.83	228 47 342 08	T. P. 351..... T. P. 353.....	22.7 27.7	T. P. 380.....	45 09 05.60 71 25 40.88	211 56 48 24	T. P. 379..... T. P. 381.....	157.6 59.8
T. P. 353.....	45 09 37.39 71 25 29.44	162 08 271 05	T. P. 352..... T. P. 354.....	27.7 42.8	T. P. 381.....	45 09 04.31 71 25 42.93	228 24 67 35	T. P. 380..... T. P. 382.....	59.8 65.3
T. P. 354.....	45 09 37.37 71 25 27.48	91 05 343 31	T. P. 353..... T. P. 355.....	42.8 14.1	T. P. 382.....	45 09 03.50 71 25 45.69	247 35 95 15	T. P. 381..... T. P. 383.....	65.3 70.0

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 383.....	45 09 03.71 71 25 48.88	275 15 52 24	T. P. 382..... T. P. 384.....	70.0 46.4	T. P. 412.....	45 08 21.22 71 26 06.90	120 29 320 47	T. P. 411..... T. P. 413.....	101.1 86.7
T. P. 384.....	45 09 02.79 71 25 50.56	232 24 9 36	T. P. 383..... T. P. 385.....	46.4 89.1	T. P. 413.....	45 08 19.04 71 26 04.39	140 47 295 22	T. P. 412..... T. P. 414.....	86.7 135.6
T. P. 385.....	45 08 59.94 71 25 51.24	189 36 59 13	T. P. 384..... T. P. 386.....	89.1 81.6	T. P. 414.....	45 08 17.16 71 25 58.78	115 22 4 33	T. P. 413..... T. P. 415.....	135.6 72.9
T. P. 386.....	45 08 58.59 71 25 54.45	239 13 79 40	T. P. 385..... T. P. 387.....	81.6 42.3	T. P. 415.....	45 08 14.80 71 25 59.04	184 33 308 15	T. P. 414..... T. P. 416.....	72.9 110.3
T. P. 387.....	45 08 58.34 71 25 56.35	259 40 29 51	T. P. 386..... T. P. 388.....	42.3 71.5	T. P. 416.....	45 08 12.59 71 25 55.08	128 15 328 39	T. P. 415..... T. P. 417.....	110.3 36.3
T. P. 388.....	45 08 56.33 71 25 57.98	209 51 51 55	T. P. 387..... T. P. 389.....	71.5 105.5	T. P. 417.....	45 08 11.59 71 25 54.22	148 39 224 00 351 41	T. P. 416..... Ref. Mon. 511-6..... T. P. 418.....	36.3 15.3 155.9
T. P. 389.....	45 08 54.23 71 26 01.78	231 55 13 10 278 07	T. P. 388..... T. P. 390..... Ref. Mon. 511-4.....	105.5 83.7 51.3	Ref. Mon. 511-6.....	45 08 11.95 71 25 53.73	44 00 147 04	T. P. 417..... Duran.....	15.3 925.5
Ref. Mon. 511-4.....	45 08 53.99 71 25 59.45	98 07 357 42	T. P. 389..... Bird.....	51.3 323.6	T. P. 418.....	45 08 06.59 71 25 53.19	171 41 328 24	T. P. 417..... T. P. 419.....	155.9 110.3
T. P. 390.....	45 08 51.59 71 26 02.65	193 10 350 16	T. P. 389..... T. P. 391.....	83.7 57.9	T. P. 419.....	45 08 03.55 71 25 50.55	148 24 315 39	T. P. 418..... T. P. 420.....	110.3 84.2
T. P. 391.....	45 08 49.74 71 26 02.20	170 16 11 47	T. P. 390..... T. P. 392.....	57.9 62.5	T. P. 420.....	45 08 01.60 71 25 47.86	135 39 288 19	T. P. 419..... T. P. 421.....	84.2 52.9
T. P. 392.....	45 08 47.76 71 26 02.78	191 47 347 37	T. P. 391..... T. P. 393.....	62.5 94.3	T. P. 421.....	45 08 01.06 71 25 45.56	108 19 345 02	T. P. 420..... T. P. 422.....	52.9 39.3
T. P. 393.....	45 08 44.78 71 26 01.86	167 37 3 44	T. P. 392..... T. P. 394.....	94.3 44.9	T. P. 422.....	45 07 59.83 71 25 45.10	165 02 13 14	T. P. 421..... T. P. 423.....	39.3 72.0
T. P. 394.....	45 08 43.33 71 26 01.99	183 44 63 56	T. P. 393..... T. P. 395.....	44.9 31.3	T. P. 423.....	45 07 57.56 71 25 45.85	193 14 338 02	T. P. 422..... T. P. 424.....	72.0 115.3
T. P. 395.....	45 08 42.88 71 26 03.28	243 56 161 09	T. P. 394..... T. P. 396.....	31.3 37.9	T. P. 424.....	45 07 54.09 71 05 43.88	158 02 283 02	T. P. 423..... T. P. 425.....	115.3 36.0
T. P. 396.....	45 08 44.04 71 26 03.84	341 09 114 11	T. P. 395..... T. P. 397.....	37.9 33.9	T. P. 425.....	45 07 53.83 71 25 42.27	103 02 345 55	T. P. 424..... T. P. 426.....	36.0 190.0
T. P. 397.....	45 08 44.48 71 26 05.25	318 37 294 11 12 24	Ref. Mon. 511-5..... T. P. 396..... T. P. 398.....	30.2 33.9 44.9	T. P. 426.....	45 07 47.86 71 25 40.15	165 55 298 43 157 13	T. P. 425..... T. P. 427..... Ref. Mon. 511-7.....	190.0 25.4 51.5
Ref. Mon. 511-5.....	45 08 43.75 71 26 04.34	52 56 138 37	Duran..... T. P. 397.....	340.1 30.2	Ref. Mon. 511-7.....	45 07 49.40 71 25 41.06	337 13 339 30	T. P. 426..... Cliff.....	51.5 654.5
T. P. 398.....	45 08 43.06 71 26 05.69	192 24 348 34	T. P. 397..... T. P. 399.....	44.9 68.3	T. P. 427.....	45 07 47.46 71 25 39.13	118 43 234 31	T. P. 426..... T. P. 428.....	25.4 35.2
T. P. 399.....	45 08 40.89 71 26 05.07	168 34 26 10	T. P. 398..... T. P. 400.....	68.3 57.4	T. P. 428.....	45 07 48.12 71 25 37.82	54 31 323 03	T. P. 427..... T. P. 429.....	35.2 65.9
T. P. 400.....	45 08 39.22 71 26 06.23	206 10 52 18	T. P. 399..... T. P. 401.....	57.4 40.7	T. P. 429.....	45 07 46.41 71 25 36.01	143 03 21 39	T. P. 428..... T. P. 430.....	65.9 145.9
T. P. 401.....	45 08 38.41 71 26 07.70	232 18 9 44	T. P. 400..... T. P. 402.....	40.7 110.5	T. P. 430.....	45 07 42.02 71 25 38.47	201 39 346 46	T. P. 429..... T. P. 431.....	145.9 105.6
T. P. 402.....	45 08 34.88 71 26 08.56	189 44 358 27	T. P. 401..... T. P. 403.....	110.5 50.0	T. P. 431.....	45 07 38.69 71 25 37.36	166 46 7 14	T. P. 430..... T. P. 432.....	105.6 34.9
T. P. 403.....	45 08 33.26 71 26 08.50	178 27 17 31	T. P. 402..... T. P. 404.....	50.0 71.3	T. P. 432.....	45 07 37.57 71 25 37.56	187 14 38 42	T. P. 431..... T. P. 433.....	34.9 163.1
T. P. 404.....	45 08 31.06 71 26 09.48	197 31 79 38	T. P. 403..... T. P. 405.....	71.3 31.2	T. P. 433.....	45 07 33.45 71 25 42.23	218 42 14 58	T. P. 432..... T. P. 434.....	163.1 102.1
T. P. 405.....	45 08 30.88 71 26 10.88	259 38 142 35	T. P. 404..... T. P. 406.....	31.2 57.5	T. P. 434.....	45 07 30.26 71 25 43.44	194 58 67 58	T. P. 433..... T. P. 435.....	102.1 77.8
T. P. 406.....	45 08 32.36 71 26 12.48	322 35 101 00	T. P. 405..... T. P. 407.....	57.5 39.5	T. P. 435.....	45 07 29.31 71 25 46.74	247 58 0 50	T. P. 434..... T. P. 436.....	77.8 58.7
T. P. 407.....	45 08 32.61 71 26 14.26	281 00 55 52	T. P. 406..... T. P. 408.....	39.5 83.9	T. P. 436.....	45 07 27.41 71 25 46.78	180 50 315 59	T. P. 435..... T. P. 437.....	58.7 79.5
T. P. 408.....	45 08 31.09 71 26 17.44	235 52 0 29	T. P. 407..... T. P. 409.....	83.9 40.4	T. P. 437.....	45 07 25.56 71 25 44.25	135 59 41 29	T. P. 436..... T. P. 438.....	79.5 72.5
T. P. 409.....	45 08 29.78 71 26 17.46	180 29 327 52	T. P. 408..... T. P. 410.....	40.4 150.2	T. P. 438.....	45 07 23.80 71 25 46.45	221 29 21 29	T. P. 437..... T. P. 439.....	72.5 106.4
T. P. 410.....	45 08 25.66 71 26 13.80	147 52 323 25	T. P. 409..... T. P. 411.....	150.2 106.8	T. P. 439.....	45 07 20.59 71 25 48.23	201 29 51 24 359 04	T. P. 438..... T. P. 440..... Ref. Mon. 511-8.....	106.4 175.5 37.9
T. P. 411.....	45 08 22.88 71 26 10.89	143 25 300 29	T. P. 410..... T. P. 412.....	106.8 101.1	Ref. Mon. 511-8.....	45 07 19.36 71 25 48.20	179 04 230 47	T. P. 439..... Cliff.....	37.9 497.1

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 440.....	45 07 17.04 71 25 54.50	231 24 24 11	T. P. 439..... T. P. 441.....	175.5 102.8	T. P. 470.....	45 06 38.09 71 27 02.80	247 10 23 15	T. P. 469..... T. P. 471.....	75.9 49.5
T. P. 441.....	45 07 14.00 71 25 56.43	204 11 50 24	T. P. 440..... T. P. 442.....	102.8 112.1	T. P. 471.....	45 06 36.62 71 27 03.69	203 15 329 30	T. P. 470..... T. P. 472.....	49.5 27.9
T. P. 442.....	45 07 11.69 71 26 00.38	230 24 83 47	T. P. 441..... T. P. 443.....	112.1 38.6	T. P. 472.....	45 06 35.84 71 27 03.04	149 30 24 44	T. P. 471..... T. P. 473.....	27.9 56.7
T. P. 443.....	45 07 11.55 71 26 02.14	263 47 110 13	T. P. 442..... T. P. 444.....	38.6 64.7	T. P. 473.....	45 06 34.17 71 27 04.13	204 44 3 35	T. P. 472..... T. P. 474.....	56.7 26.8
T. P. 444.....	45 07 12.27 71 26 04.91	290 13 50 41	T. P. 443..... T. P. 445.....	64.7 149.5	T. P. 474.....	45 06 33.30 71 27 04.21	183 35 325 05	T. P. 473..... T. P. 475.....	26.8 31.8
T. P. 445.....	45 07 09.20 71 26 10.20	230 41 334 57	T. P. 444..... T. P. 446.....	149.5 81.1	T. P. 475.....	45 06 32.46 71 27 03.38	145 05 228 27	T. P. 474..... T. P. 476.....	31.8 87.2
T. P. 446.....	45 07 06.83 71 26 08.63	154 57 30 25	T. P. 445..... T. P. 447.....	81.1 46.1	T. P. 476.....	45 06 34.33 71 27 00.39	48 27 308 10	T. P. 475..... T. P. 477.....	87.2 41.7
T. P. 447.....	45 07 05.54 71 26 09.70	210 25 58 05	T. P. 446..... T. P. 448.....	46.1 77.7	T. P. 477.....	45 06 33.50 71 26 58.89	128 10 339 25	T. P. 476..... T. P. 478.....	41.7 117.5
T. P. 448.....	45 07 04.21 71 26 12.72	238 05 88 26	T. P. 447..... T. P. 449.....	77.7 105.5	T. P. 478.....	45 06 29.94 71 26 57.00	159 25 10 12	T. P. 477..... T. P. 479.....	117.5 39.4
T. P. 449.....	45 07 04.12 71 26 17.54	268 26 56 12	T. P. 448..... T. P. 450.....	105.5 92.0	T. P. 479.....	45 06 28.68 71 26 57.32	190 12 69 06	T. P. 478..... T. P. 480.....	39.4 82.4
T. P. 450.....	45 07 02.46 71 26 21.04	236 12 36 51	T. P. 449..... T. P. 451.....	92.0 117.2	T. P. 480.....	45 06 27.73 71 27 00.84	249 06 42 50	T. P. 479..... T. P. 481.....	82.4 83.6
T. P. 451.....	45 06 59.42 71 26 24.26	216 51 44 47	T. P. 450..... T. P. 452.....	117.2 65.3	T. P. 481.....	45 06 25.74 71 27 03.44	222 50 0 10	T. P. 480..... T. P. 482.....	83.6 50.8
T. P. 452.....	45 06 57.92 71 26 26.36	224 47 13 59	T. P. 451..... T. P. 453.....	65.3 80.4	T. P. 482.....	45 06 24.09 71 27 03.45	180 10 308 19	T. P. 481..... T. P. 483.....	50.8 50.7
T. P. 453.....	45 06 55.39 71 26 27.25	193 59 27 45	T. P. 452..... T. P. 454.....	80.4 61.3	T. P. 483.....	45 06 23.07 71 27 01.63	128 19 40 13	T. P. 482..... T. P. 484.....	50.7 57.6
T. P. 454.....	45 06 53.63 71 26 28.55	207 45 9 05	T. P. 453..... T. P. 455.....	61.3 31.3	T. P. 484.....	45 06 21.65 71 27 03.33	220 13 16 45	T. P. 483..... T. P. 485.....	57.6 43.5
T. P. 455.....	45 06 52.63 71 26 28.78	189 05 315 21	T. P. 454..... T. P. 456.....	31.3 93.0	T. P. 485.....	45 06 20.30 71 27 03.90	196 45 40 45	T. P. 484..... T. P. 486.....	43.5 66.5
T. P. 456.....	45 06 50.49 71 26 25.79	135 21 47 32	T. P. 455..... T. P. 457.....	93.0 42.0	T. P. 486.....	45 06 18.67 71 27 05.89	220 45 327 30	T. P. 485..... T. P. 487.....	66.5 39.1
T. P. 457.....	45 06 49.57 71 26 27.21	227 32 73 30	T. P. 456..... T. P. 458.....	42.0 59.1	T. P. 487.....	45 06 17.60 71 27 04.93	147 30 285 39	T. P. 486..... T. P. 488.....	39.1 63.7
T. P. 458.....	45 06 49.02 71 26 29.80	253 30 41 18	T. P. 457..... T. P. 459.....	59.1 65.4	T. P. 488.....	45 06 17.04 71 27 02.12	105 39 216 19	T. P. 487..... T. P. 489.....	63.7 65.2
T. P. 459.....	45 06 47.43 71 26 31.78	221 18 75 03	T. P. 458..... T. P. 460.....	65.4 37.4	T. P. 489.....	45 06 18.74 71 27 00.35	36 19 322 10	T. P. 488..... T. P. 490.....	65.2 45.2
T. P. 460.....	45 06 47.12 71 26 33.43	255 03 90 57	T. P. 459..... T. P. 461.....	37.4 90.1	T. P. 490.....	45 06 17.59 71 26 59.08	142 10 12 23	T. P. 489..... T. P. 491.....	45.2 38.3
T. P. 461.....	45 06 47.17 71 26 37.55	270 57 52 56	T. P. 460..... T. P. 462.....	90.1 89.2	T. P. 491.....	45 06 16.38 71 26 59.46	192 23 52 55	T. P. 490..... T. P. 492.....	38.3 49.1
T. P. 462.....	45 06 45.42 71 26 40.80	232 56 129 09 238 59	T. P. 461..... T. P. 463..... Ref. Mon. 511-9...	89.2 129.3 74.0	T. P. 492.....	45 06 15.42 71 27 01.26	232 55 42 14 9 54	T. P. 491..... T. P. 493..... Ref. Mon. 511-10...	49.1 113.1 20.7
Ref. Mon. 511-9...	45 06 46.66 71 26 37.90	58 59 100 45	T. P. 462..... Paquette	74.0 436.8	Ref. Mon. 511-10...	45 06 14.76 71 27 01.42	56 37 189 54	Cedar tablet..... T. P. 492.....	1,137.1 20.7
T. P. 463.....	45 06 48.07 71 26 45.39	309 09 118 25	T. P. 462..... T. P. 464.....	129.3 56.7	T. P. 493.....	45 06 12.71 71 27 04.74	222 14 17 23	T. P. 492..... T. P. 494.....	113.1 48.7
T. P. 464.....	45 06 48.94 71 26 47.67	298 25 83 28	T. P. 463..... T. P. 465.....	56.7 98.7	T. P. 494.....	45 06 11.20 71 27 05.40	197 23 39 13	T. P. 493..... T. P. 495.....	48.7 81.5
T. P. 465.....	45 06 48.58 71 26 52.16	263 28 62 40	T. P. 464..... T. P. 466.....	98.7 91.2	T. P. 495.....	45 06 09.15 71 27 07.76	219 13 54 33	T. P. 494..... T. P. 496.....	81.5 88.8
T. P. 466.....	45 06 47.22 71 26 55.87	242 40 36 24	T. P. 465..... T. P. 467.....	91.2 65.1	T. P. 496.....	45 06 07.48 71 27 11.07	234 33 104 04	T. P. 495..... T. P. 497.....	88.8 45.2
T. P. 467.....	45 06 45.52 71 26 57.64	216 24 348 51	T. P. 466..... T. P. 468.....	65.1 131.0	T. P. 497.....	45 06 07.84 71 27 13.08	284 04 72 00	T. P. 496..... T. P. 498.....	45.2 34.1
T. P. 468.....	45 06 41.36 71 26 56.48	168 51 43 35	T. P. 467..... T. P. 469.....	131.0 98.8	T. P. 498.....	45 06 07.50 71 27 14.56	252 00 47 33	T. P. 497..... T. P. 499.....	34.1 61.3
T. P. 469.....	45 06 39.04 71 26 59.60	223 35 67 10	T. P. 468..... T. P. 470.....	98.8 75.9	T. P. 499.....	45 06 06.16 71 27 16.63	227 33 75 19	T. P. 498..... T. P. 500.....	61.3 89.2



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
T. P. 500	45 06 05.43 71 27 20.57	255 19 37 17	T. P. 499 T. P. 501	89.2 65.9	Ref. Mon. 511-13	45 05 14.56 71 28 05.98	38 53 296 23 333 35	Cone. T. P. 528 T. P. 529	1,281.6 70.2 73.7
T. P. 501	45 06 03.73 71 27 22.39	217 17 11 31	T. P. 500 T. P. 502	65.9 120.1	T. P. 529	45 05 12.42 71 28 04.48	153 35 220 51 5 07	Ref. Mon. 511-13 T. P. 528 T. P. 530	73.7 46.0 70.1
T. P. 502	45 05 59.92 71 27 23.49	191 31 48 59 114 11	T. P. 501 T. P. 503 Ref. Mon. 511-11	120.1 28.2 66.7	T. P. 530	45 05 10.16 71 28 04.77	185 07 335 07	T. P. 529 T. P. 531	70.1 51.9
Ref. Mon. 511-11	45 06 00.80 71 27 26.27	64 19 294 11	Cedar tablet T. P. 502	450.4 66.7	T. P. 531	45 05 08.63 71 28 03.77	155 07 0 03	T. P. 530 T. P. 532	51.9 45.0
T. P. 503	45 05 59.31 71 27 24.46	228 59 66 17	T. P. 502 T. P. 504	28.2 162.6	T. P. 532	45 05 07.17 71 28 03.77	180 03 49 25	T. P. 531 T. P. 533	45.0 32.1
T. P. 504	45 05 57.19 71 27 31.27	246 17 35 52	T. P. 503 T. P. 505	162.6 43.2	T. P. 533	45 05 06.49 71 28 04.89	229 25 72 08	T. P. 532 T. P. 534	32.1 41.4
T. P. 505	45 05 56.06 71 27 32.43	215 52 19 20	T. P. 504 T. P. 506	43.2 169.5	T. P. 534	45 05 06.08 71 28 06.69	252 08 27 58	T. P. 533 T. P. 535	41.4 80.5
T. P. 506	45 05 50.88 71 27 35.00	199 20 13 01	T. P. 505 T. P. 507	169.5 95.4	T. P. 535	45 05 03.78 71 28 08.41	207 58 5 10	T. P. 534 T. P. 536	80.5 28.8
T. P. 507	45 05 47.87 71 27 35.98	193 01 347 11	T. P. 506 T. P. 508	95.4 59.9	T. P. 536	45 05 02.85 71 28 08.53	185 10 293 05	T. P. 535 T. P. 537	28.8 43.6
T. P. 508	45 05 45.98 71 27 35.37	167 11 317 34	T. P. 507 T. P. 509	59.9 83.2	T. P. 537	45 05 02.30 71 28 06.70	113 05 344 57	T. P. 536 T. P. 538	43.6 27.7
T. P. 509	45 05 43.99 71 27 32.80	137 34 335 21	T. P. 508 T. P. 510	83.2 38.4	T. P. 538	45 05 01.43 71 28 06.37	164 57 77 33	T. P. 537 T. P. 539	27.7 44.2
T. P. 510	45 05 42.86 71 27 32.07	155 21 52 23	T. P. 509 T. P. 511	38.4 35.5	T. P. 539	45 05 01.12 71 28 08.35	257 33 100 49	T. P. 538 T. P. 540	44.2 75.9
T. P. 511	45 05 42.16 71 27 33.36	232 23 91 39	T. P. 510 T. P. 512	35.5 110.0	T. P. 540	45 05 01.59 71 28 11.76	280 49 66 28	T. P. 539 T. P. 541	75.9 78.3
T. P. 512	45 05 42.26 71 27 38.39	271 39 71 43	T. P. 511 T. P. 513	110.0 33.2	T. P. 541	45 05 00.58 71 28 15.05	246 28 104 43	T. P. 540 T. P. 542	78.3 73.3
T. P. 513	45 05 41.92 71 27 39.83	251 43 47 10	T. P. 512 T. P. 514	33.2 38.2	T. P. 542	45 05 01.18 71 28 18.29	284 43 100 03	T. P. 541 T. P. 543	73.3 109.7
T. P. 514	45 05 41.08 71 27 41.11	227 10 28 41	T. P. 513 T. P. 515	38.2 199.5	T. P. 543	45 05 01.80 71 28 23.23	280 03 77 16	T. P. 542 T. P. 544	109.7 70.0
T. P. 515	45 05 35.41 71 27 45.49	208 41 83 17	T. P. 514 T. P. 516	199.5 34.9	T. P. 544	45 05 01.30 71 28 26.35	257 16 96 11	T. P. 543 T. P. 545	70.0 79.4
T. P. 516	45 05 35.28 71 27 47.07	263 17 111 16	T. P. 515 T. P. 517	34.9 115.9	T. P. 545	45 05 01.58 71 28 29.96	276 11 136 23	T. P. 544 T. P. 546	79.4 84.1
T. P. 517	45 05 36.64 71 27 52.01	291 16 77 04	T. P. 516 T. P. 518	115.9 40.2	T. P. 546	45 05 03.55 71 28 32.61	316 23 65 38	T. P. 545 T. P. 547	84.1 58.8
T. P. 518	45 05 36.35 71 27 53.80	257 04 22 32 289 37	T. P. 517 T. P. 519 Ref. Mon. 511-12	40.2 100.6 175.3	T. P. 547	45 05 02.76 71 28 35.06	245 38 358 34	T. P. 546 T. P. 548	58.8 60.2
Ref. Mon. 511-12	45 05 34.45 71 27 46.25	37 30 109 37	Cone. T. P. 518	2,031.1 175.3	T. P. 548	45 05 00.81 71 28 34.99	178 34 40 04	T. P. 547 T. P. 549	60.2 70.3
T. P. 519	45 05 33.34 71 27 55.56	202 32 25 15	T. P. 518 T. P. 520	100.6 53.0	T. P. 549	45 04 59.07 71 28 37.06	220 04 80 14 240 08	T. P. 548 T. P. 550 Ref. Mon. 511-14	70.3 46.7 62.5
T. P. 520	45 05 31.79 71 27 56.59	205 15 38 11	T. P. 519 T. P. 521	53.0 50.9	Ref. Mon. 511-14	45 05 00.08 71 28 34.58	18 00 60 08	Cone. T. P. 549	579.0 62.5
T. P. 521	45 05 30.49 71 27 58.03	218 11 22 43	T. P. 520 T. P. 522	50.9 52.3	T. P. 550	45 04 58.81 71 28 39.16	260 14 164 38	T. P. 549 T. P. 551	46.7 131.9
T. P. 522	45 05 28.93 71 27 58.95	202 43 353 53	T. P. 521 T. P. 523	52.3 34.0	T. P. 551	45 05 02.93 71 28 40.76	344 38 119 24	T. P. 550 T. P. 552	131.9 62.4
T. P. 523	45 05 27.83 71 27 58.78	173 53 6 19	T. P. 522 T. P. 524	34.0 82.3	T. P. 552	45 05 03.92 71 28 43.25	299 24 18 50	T. P. 551 T. P. 553	62.4 93.0
T. P. 524	45 05 25.18 71 27 59.19	186 19 13 01	T. P. 523 T. P. 525	82.3 163.9	T. P. 553	45 05 01.07 71 28 44.62	198 50 87 24	T. P. 552 T. P. 554	93.0 88.1
T. P. 525	45 05 20.01 71 28 00.88	193 01 333 19	T. P. 524 T. P. 526	163.9 161.7	T. P. 554	45 05 00.94 71 28 48.65	267 24 69 00	T. P. 553 T. P. 555	88.1 67.8
T. P. 526	45 05 15.33 71 27 57.56	153 19 31 51	T. P. 525 T. P. 527	161.7 114.4	T. P. 555	45 05 00.15 71 28 51.54	249 00 54 23	T. P. 554 T. P. 556	67.8 74.3
T. P. 527	45 05 12.18 71 28 00.32	211 51 124 51	T. P. 526 T. P. 528	114.4 74.0	T. P. 556	45 04 58.75 71 28 54.30	234 23 330 18	T. P. 555 T. P. 557	74.3 49.1
T. P. 528	45 05 13.55 71 28 03.10	304 51 40 51 116 23	T. P. 527 T. P. 529 Ref. Mon. 511-13	74.0 46.0 70.2	T. P. 557	45 04 57.37 71 28 53.19	150 18 292 49	T. P. 556 T. P. 558	49.1 76.6

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° '				° ' "	° '		
T. P. 558-----	45 04 56.41 71 28 49.96	112 49 358 43	T. P. 557----- T. P. 559-----	76.6 69.9	T. P. 588-----	45 04 14.63 71 29 24.90	220 08 119 57	T. P. 587----- T. P. 589-----	86.0 66.3
T. P. 559-----	45 04 54.15 71 28 49.89	178 43 28 00	T. P. 558----- T. P. 560-----	69.9 132.9	T. P. 589-----	45 04 15.71 71 29 27.53	299 57 99 09	T. P. 588----- T. P. 590-----	66.3 69.9
T. P. 560-----	45 04 50.35 71 28 52.74	208 00 45 52	T. P. 559----- T. P. 561-----	132.9 42.7	T. P. 590-----	45 04 16.07 71 29 30.69	279 09 110 40	T. P. 589----- T. P. 591-----	69.9 106.1
T. P. 561-----	45 04 49.39 71 28 54.14	225 52 93 49	T. P. 560----- T. P. 562-----	42.7 81.7	T. P. 591-----	45 04 17.28 71 29 35.23	290 40 95 15	T. P. 590----- T. P. 592-----	106.1 41.7
T. P. 562-----	45 04 49.56 71 28 57.87	273 49 353 30	T. P. 561----- T. P. 563-----	81.7 41.9	T. P. 592-----	45 04 17.40 71 29 37.13	275 15 68 55 15 19	T. P. 591----- T. P. 593----- Ref. Mon. 511-16..	41.7 62.7 44.8
T. P. 563-----	45 04 48.21 71 28 57.65	173 30 20 13	T. P. 562----- T. P. 564-----	41.9 115.9	Ref. Mon. 511-16..	45 04 16.00 71 29 37.67	69 17 195 19	Fall----- T. P. 592-----	662.1 44.8
T. P. 564-----	45 04 44.69 71 28 59.48	200 13 63 16	T. P. 563----- T. P. 565-----	115.9 44.0	T. P. 593-----	45 04 16.67 71 29 39.80	248 55 102 55	T. P. 592----- T. P. 594-----	62.7 48.2
T. P. 565-----	45 04 44.05 71 29 01.28	243 16 154 57	T. P. 564----- T. P. 566-----	44.0 61.0	T. P. 594-----	45 04 17.02 71 29 41.94	282 55 17 29	T. P. 593----- T. P. 595-----	48.2 85.1
T. P. 566-----	45 04 45.84 71 29 02.46	334 57 79 58	T. P. 565----- T. P. 567-----	61.0 119.6	T. P. 595-----	45 04 14.39 71 29 43.11	197 29 294 32	T. P. 594----- T. P. 596-----	85.1 59.9
T. P. 567-----	45 04 45.17 71 29 07.84	259 58 87 05	T. P. 566----- T. P. 568-----	119.6 78.3	T. P. 596-----	45 04 13.59 71 29 40.62	114 32 8 41	T. P. 595----- T. P. 597-----	59.9 52.0
T. P. 568-----	45 04 45.04 71 29 11.42	267 05 66 00	T. P. 567----- T. P. 569-----	78.3 115.5	T. P. 597-----	45 04 11.93 71 29 40.98	188 41 49 04	T. P. 596----- T. P. 598-----	52.0 37.2
T. P. 569-----	45 04 43.52 71 29 16.24	246 00 327 31	T. P. 568----- T. P. 570-----	115.5 70.1	T. P. 598-----	45 04 11.14 71 29 42.26	229 04 76 08	T. P. 597----- T. P. 599-----	37.2 46.2
T. P. 570-----	45 04 41.60 71 29 14.52	147 31 359 29	T. P. 569----- T. P. 571-----	70.1 47.3	T. P. 599-----	45 04 10.78 71 29 44.31	256 08 24 03	T. P. 598----- T. P. 600-----	46.2 28.7
T. P. 571-----	45 04 40.07 71 29 14.50	179 29 45 50	T. P. 570----- T. P. 572-----	47.3 34.2	T. P. 600-----	45 04 09.93 71 29 44.85	204 03 10 22	T. P. 599----- T. P. 601-----	28.7 36.5
T. P. 572-----	45 04 39.29 71 29 15.63	225 50 5 18 137 35	T. P. 571----- T. P. 573----- Ref. Mon. 511-15..	34.2 81.4 18.3	T. P. 601-----	45 04 08.77 71 29 45.15	190 22 55 20	T. P. 600----- T. P. 602-----	36.5 33.3
Ref. Mon. 511-15..	45 04 39.73 71 29 16.19	263 57 317 35	Cone----- T. P. 572-----	735.1 18.3	T. P. 602-----	45 04 08.16 71 29 46.40	235 20 159 19	T. P. 601----- T. P. 603-----	33.3 55.3
T. P. 573-----	45 04 36.67 71 29 15.97	185 18 297 18	T. P. 572----- T. P. 574-----	81.4 80.2	T. P. 603-----	45 04 09.83 71 29 47.29	339 19 149 32	T. P. 602----- T. P. 604-----	55.3 89.9
T. P. 574-----	45 04 35.48 71 29 12.71	117 18 3 00	T. P. 573----- T. P. 575-----	80.2 89.6	T. P. 604-----	45 04 12.34 71 29 49.37	329 32 124 59	T. P. 603----- T. P. 605-----	89.9 56.9
T. P. 575-----	45 04 32.58 71 29 12.93	183 00 33 47	T. P. 574----- T. P. 576-----	89.6 50.5	T. P. 605-----	45 04 13.40 71 29 51.50	304 59 111 02	T. P. 604----- T. P. 606-----	56.9 50.6
T. P. 576-----	45 04 31.22 71 29 14.21	213 47 62 23	T. P. 575----- T. P. 577-----	50.5 76.5	T. P. 606-----	45 04 13.99 71 29 53.66	291 02 42 16	T. P. 605----- T. P. 607-----	50.6 41.7
T. P. 577-----	45 04 30.07 71 29 17.31	242 23 38 26	T. P. 576----- T. P. 578-----	76.5 99.4	T. P. 607-----	45 04 12.99 71 29 54.94	222 16 3 36	T. P. 606----- T. P. 608-----	41.7 113.5
T. P. 578-----	45 04 27.55 71 29 20.14	218 26 91 49	T. P. 577----- T. P. 579-----	99.4 49.3	T. P. 608-----	45 04 09.32 71 29 55.27	183 36 337 42	T. P. 607----- T. P. 609-----	113.5 39.6
T. P. 579-----	45 04 27.60 71 29 22.39	271 49 20 54	T. P. 578----- T. P. 580-----	49.3 63.1	T. P. 609-----	45 04 08.13 71 29 54.58	157 42 304 31	T. P. 608----- T. P. 610-----	39.6 31.3
T. P. 580-----	45 04 25.69 71 29 23.42	200 54 1 16	T. P. 579----- T. P. 581-----	63.1 75.9	T. P. 610-----	45 04 07.55 71 29 53.40	124 31 333 09	T. P. 609----- T. P. 611-----	31.3 51.6
T. P. 581-----	45 04 23.23 71 29 23.49	181 16 348 57	T. P. 580----- T. P. 582-----	75.9 79.1	T. P. 611-----	45 04 06.06 71 29 52.34	153 09 45 51	T. P. 610----- T. P. 612-----	51.6 43.2
T. P. 582-----	45 04 20.71 71 29 22.80	168 57 308 38	T. P. 581----- T. P. 583-----	79.1 88.6	T. P. 612-----	45 04 05.08 71 29 53.76	225 51 9 05	T. P. 611----- T. P. 613-----	43.2 21.6
T. P. 583-----	45 04 18.92 71 29 19.64	128 38 305 15	T. P. 582----- T. P. 584-----	88.6 43.3	T. P. 613-----	45 04 04.39 71 29 53.92	189 05 302 42	T. P. 612----- T. P. 614-----	21.6 30.3
T. P. 584-----	45 04 18.11 71 29 18.02	125 15 355 32	T. P. 583----- T. P. 585-----	43.3 27.3	T. P. 614-----	45 04 03.86 71 29 52.75	122 42 7 56	T. P. 613----- T. P. 615-----	30.3 99.9
T. P. 585-----	45 04 17.23 71 29 17.92	175 32 61 30	T. P. 584----- T. P. 586-----	27.3 58.3	T. P. 615-----	45 04 00.66 71 29 53.38	187 56 340 39	T. P. 614----- T. P. 616-----	99.9 98.0
T. P. 586-----	45 04 16.33 71 29 20.26	241 30 106 13	T. P. 585----- T. P. 587-----	58.3 47.9	T. P. 616-----	45 03 57.66 71 29 51.90	160 39 312 36 168 40	T. P. 615----- T. P. 617----- Ref. Mon. 512-----	98.0 61.4 96.0
T. P. 587-----	45 04 16.76 71 29 22.37	286 13 40 08	T. P. 586----- T. P. 588-----	47.9 86.0	Ref. Mon. 512-----	45 04 00.71 71 29 52.76	129 26 348 40	Fall----- T. P. 616-----	374.4 96.0

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
T. P. 617-----	45 03 56.31 71 29 49.84	132 36 320 04	T. P. 616----- T. P. 618-----	61.4 117.1	T. P. 649-----	45 03 22.37 71 29 52.34	129 22 346 22	T. P. 648----- T. P. 650-----	31.3 38.2
T. P. 618-----	45 03 53.40 71 29 46.40	140 04 25 44	T. P. 617----- T. P. 619-----	117.1 113.3	T. P. 650-----	45 03 21.17 71 29 51.93	166 22 32 35 356 56	T. P. 649----- T. P. 651----- Ref. Mon. 512-1-----	38.2 89.2 40.9
T. P. 619-----	45 03 50.09 71 29 48.65	205 44 5 04	T. P. 618----- T. P. 620-----	113.3 94.2	Ref. Mon. 512-1-----	45 03 19.85 71 29 51.83	168 20 176 56	Fall----- T. P. 650-----	1,520.7 40.9
T. P. 620-----	45 03 47.05 71 29 49.03	185 04 22 45	T. P. 619----- T. P. 621-----	94.2 213.4	T. P. 651-----	45 03 18.74 71 29 54.12	212 35 12 48	T. P. 650----- T. P. 652-----	89.2 74.7
T. P. 621-----	45 03 40.68 71 29 52.80	202 45 318 42	T. P. 620----- T. P. 622-----	213.4 68.6	T. P. 652-----	45 03 16.38 71 29 54.88	192 48 39 18	T. P. 651----- T. P. 653-----	74.7 68.9
T. P. 622-----	45 03 39.01 71 29 50.73	138 42 14 23	T. P. 621----- T. P. 623-----	68.6 73.4	T. P. 653-----	45 03 14.65 71 29 56.87	219 18 95 08	T. P. 652----- T. P. 654-----	68.9 48.1
T. P. 623-----	45 03 36.71 71 29 51.56	194 23 54 47	T. P. 622----- T. P. 624-----	73.4 84.3	T. P. 654-----	45 03 14.79 71 29 59.06	275 03 93 24	T. P. 653----- T. P. 655-----	48.1 79.9
T. P. 624-----	45 03 35.13 71 29 54.71	234 47 32 41	T. P. 623----- T. P. 625-----	84.3 83.6	T. P. 655-----	45 03 14.94 71 30 02.70	273 24 26 43	T. P. 654----- T. P. 656-----	79.9 34.8
T. P. 625-----	45 03 32.85 71 29 56.77	212 41 12 34	T. P. 624----- T. P. 626-----	83.6 53.7	T. P. 656-----	45 03 13.93 71 30 03.42	206 43 313 36	T. P. 655----- T. P. 657-----	34.8 148.8
T. P. 626-----	45 03 31.15 71 29 57.30	192 34 59 03	T. P. 625----- T. P. 627-----	53.7 46.3	T. P. 657-----	45 03 10.61 71 29 58.50	133 36 45 45	T. P. 656----- T. P. 658-----	148.8 61.8
T. P. 627-----	45 03 30.38 71 29 59.12	239 03 119 06	T. P. 626----- T. P. 628-----	46.3 43.6	T. P. 658-----	45 03 09.21 71 30 00.52	225 45 71 15	T. P. 657----- T. P. 659-----	61.8 79.6
T. P. 628-----	45 03 31.07 71 30 00.86	299 06 139 49	T. P. 627----- T. P. 629-----	43.6 40.9	T. P. 659-----	45 03 08.38 71 30 03.96	251 15 117 48	T. P. 658----- T. P. 660-----	79.6 70.5
T. P. 629-----	45 03 32.08 71 30 02.06	319 49 116 09	T. P. 628----- T. P. 630-----	40.9 79.7	T. P. 660-----	45 03 09.45 71 30 06.81	297 48 49 36	T. P. 659----- T. P. 661-----	70.5 49.9
T. P. 630-----	45 03 33.22 71 30 05.33	296 09 29 36	T. P. 629----- T. P. 631-----	79.7 53.8	T. P. 661-----	45 03 08.41 71 30 08.55	229 36 103 22	T. P. 660----- T. P. 662-----	49.9 142.4
T. P. 631-----	45 03 31.70 71 30 06.55	209 36 356 23	T. P. 630----- T. P. 632-----	53.8 113.0	T. P. 662-----	45 03 09.48 71 30 14.88	283 22 72 51	T. P. 661----- T. P. 663-----	142.4 66.7
T. P. 632-----	45 03 28.05 71 30 06.22	176 23 316 05	T. P. 631----- T. P. 633-----	113.0 28.3	T. P. 663-----	45 03 08.84 71 30 17.79	252 51 24 53	T. P. 662----- T. P. 664-----	66.7 150.5
T. P. 633-----	45 03 27.39 71 30 05.32	136 05 264 00	T. P. 632----- T. P. 634-----	28.3 31.2	T. P. 664-----	45 03 04.42 71 30 20.68	204 53 7 07	T. P. 663----- T. P. 665-----	150.5 181.2
T. P. 634-----	45 03 27.50 71 30 03.90	84 00 240 53	T. P. 633----- T. P. 635-----	31.2 48.5	T. P. 665-----	45 02 58.60 71 30 21.71	187 07 351 51	T. P. 664----- T. P. 666-----	181.2 67.9
T. P. 635-----	45 03 28.26 71 30 01.96	60 53 291 23	T. P. 634----- T. P. 636-----	48.5 22.7	T. P. 666-----	45 02 56.42 71 30 21.27	171 51 60 23	T. P. 665----- T. P. 667-----	67.9 99.3
T. P. 636-----	45 03 27.99 71 30 01.00	111 23 309 05	T. P. 635----- T. P. 637-----	22.7 48.7	T. P. 667-----	45 02 54.83 71 30 25.21	240 23 6 47	T. P. 666----- T. P. 668-----	99.3 103.8
T. P. 637-----	45 03 26.99 71 29 59.27	129 05 277 46	T. P. 636----- T. P. 638-----	48.7 46.0	T. P. 668-----	45 02 51.49 71 30 25.77	186 47 288 13	T. P. 667----- T. P. 669-----	103.8 165.2
T. P. 638-----	45 03 26.79 71 29 57.19	97 46 244 44	T. P. 637----- T. P. 639-----	46.0 68.7	T. P. 669-----	45 02 49.82 71 30 18.60	108 13 233 24	T. P. 668----- T. P. 670-----	165.2 61.3
T. P. 639-----	45 03 27.74 71 29 54.35	64 44 301 44	T. P. 638----- T. P. 640-----	68.7 29.4	T. P. 670-----	45 02 51.00 71 30 16.35	53 24 132 04	T. P. 669----- T. P. 671-----	61.3 80.6
T. P. 640-----	45 03 27.24 71 29 53.21	121 44 2 34	T. P. 639----- T. P. 641-----	29.4 25.6	T. P. 671-----	45 02 52.75 71 30 19.08	312 04 244 41	T. P. 670----- T. P. 672-----	80.6 61.9
T. P. 641-----	45 03 26.41 71 29 53.26	182 34 43 41	T. P. 640----- T. P. 642-----	25.6 47.7	T. P. 672-----	45 02 53.61 71 30 16.53	64 41 273 02 245 25	T. P. 671----- T. P. 673----- Ref. Mon. 512-2-----	61.9 69.1 75.9
T. P. 642-----	45 03 25.29 71 29 54.77	223 41 92 42	T. P. 641----- T. P. 643-----	47.7 44.2	Ref. Mon. 512-2-----	45 02 54.63 71 30 13.38	65 25 137 54	T. P. 672----- Shift-----	75.9 896.4
T. P. 643-----	45 03 25.36 71 29 56.79	272 42 29 07	T. P. 642----- T. P. 644-----	44.2 32.4	T. P. 673-----	45 02 53.49 71 30 13.38	93 02 329 59	T. P. 672----- T. P. 674-----	69.1 65.6
T. P. 644-----	45 03 24.44 71 29 57.51	209 07 39 35	T. P. 643----- T. P. 645-----	32.4 40.3	T. P. 674-----	45 02 51.65 71 30 11.88	149 59 11 26	T. P. 673----- T. P. 675-----	65.6 56.9
T. P. 645-----	45 03 23.43 71 29 58.68	219 35 338 22	T. P. 644----- T. P. 646-----	40.3 22.3	T. P. 675-----	45 02 49.84 71 30 12.40	191 26 48 31	T. P. 674----- T. P. 676-----	56.9 171.0
T. P. 646-----	45 03 22.76 71 29 58.30	158 22 294 27	T. P. 645----- T. P. 647-----	22.3 67.3	T. P. 676-----	45 02 46.17 71 30 18.25	228 31 311 27	T. P. 675----- T. P. 677-----	171.0 146.7
T. P. 647-----	45 03 21.86 71 29 55.52	114 27 231 51	T. P. 646----- T. P. 648-----	67.3 57.5	T. P. 677-----	45 02 43.02 71 30 13.23	131 27 225 51	T. P. 676----- T. P. 678-----	146.7 144.1
T. P. 648-----	45 03 23.01 71 29 53.45	51 51 309 22	T. P. 647----- T. P. 649-----	57.5 31.3					



## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
T. P. 678	45 02 46.27 71 30 08.51	45 51 335 24	T. P. 677 T. P. 679	144.1 124.8	T. P. 707	45 01 53.68 71 29 40.91	219 23 77 29	T. P. 706 T. P. 708	72.0 67.5
T. P. 679	45 02 42.60 71 30 06.13	155 24 285 49	T. P. 678 T. P. 680	124.8 86.8	T. P. 708	45 01 53.21 71 29 43.92	257 29 115 24	T. P. 707 T. P. 709	67.5 48.1
T. P. 680	45 02 41.84 71 30 02.31	105 49 290 53	T. P. 679 T. P. 681	86.8 62.4	T. P. 709	45 01 53.88 71 29 45.91	295 24 154 32	T. P. 708 T. P. 710	48.1 33.3
T. P. 681	45 02 41.12 71 29 59.65	110 53 277 38	T. P. 680 T. P. 682	62.4 95.7	T. P. 710	45 01 54.85 71 29 46.57	334 32 80 21	T. P. 709 T. P. 711	33.3 44.5
T. P. 682	45 02 40.71 71 29 55.32	97 38 263 05	T. P. 681 T. P. 683	95.7 105.1	T. P. 711	45 01 54.60 71 29 48.58	260 21 32 23	T. P. 710 T. P. 712	44.5 98.7
T. P. 683	45 02 41.12 71 29 50.55	83 05 245 34	T. P. 682 T. P. 684	105.1 70.5	T. P. 712	45 01 51.90 71 29 50.99	212 23 4 25	T. P. 711 T. P. 713	98.7 84.4
T. P. 684	45 02 42.06 71 29 47.62	65 34 222 59	T. P. 683 T. P. 685	70.5 54.3	T. P. 713	45 01 49.17 71 29 51.29	184 25 66 40	T. P. 712 T. P. 714	84.4 61.8
T. P. 685	45 02 43.35 71 29 45.93	42 59 279 06	T. P. 684 T. P. 686	54.3 43.5	T. P. 714	45 01 48.38 71 29 53.89	246 40 358 27	T. P. 713 T. P. 715	61.8 68.7
T. P. 686	45 02 43.13 71 29 43.97	99 06 245 57	T. P. 685 T. P. 687	43.5 147.5	T. P. 715	45 01 46.16 71 29 53.81	178 27 332 26	T. P. 714 T. P. 716	68.7 96.4
T. P. 687	45 02 45.07 71 29 37.80	65 57 309 15	T. P. 686 T. P. 688	147.5 106.2	T. P. 716	45 01 43.39 71 29 51.77	152 26 39 16	T. P. 715 T. P. 717	96.4 26.7
T. P. 688	45 02 42.90 71 29 34.04	129 15 335 38 137 22	T. P. 687 T. P. 689 Ref. Mon. 512-3	106.2 244.1 65.7	T. P. 717	45 01 42.72 71 29 52.54	219 16 65 49	T. P. 716 T. P. 718	26.7 44.7
Ref. Mon. 512-3	45 02 44.46 71 29 36.07	317 22 347 28	T. P. 688 Pasture	65.7 1,376.0	T. P. 718	45 01 42.13 71 29 54.40	245 49 91 53	T. P. 717 T. P. 719	44.7 62.7
T. P. 689	45 02 35.70 71 29 29.44	155 38 357 21	T. P. 688 T. P. 690	244.1 59.0	T. P. 719	45 01 42.20 71 29 57.26	271 53 329 00	T. P. 718 T. P. 720	62.7 93.5
T. P. 690	45 02 33.79 71 29 29.32	177 21 12 55	T. P. 689 T. P. 691	59.0 96.4	T. P. 720	45 01 39.60 71 29 55.06	149 00 351 17	T. P. 719 T. P. 721	93.5 89.0
T. P. 691	45 02 30.74 71 29 30.30	192 55 358 52	T. P. 690 T. P. 692	96.4 81.2	T. P. 721	45 01 36.75 71 29 54.44	171 17 12 02	T. P. 720 T. P. 722	89.0 28.0
T. P. 692	45 02 28.11 71 29 30.23	178 52 28 00	T. P. 691 T. P. 693	81.2 118.3	T. P. 722	45 01 35.86 71 29 54.71	192 02 88 48	T. P. 721 T. P. 723	28.0 93.4
T. P. 693	45 02 24.73 71 29 32.77	208 00 12 35	T. P. 692 T. P. 694	118.3 97.7	T. P. 723	45 01 35.79 71 29 58.98	268 48 120 37	T. P. 722 T. P. 724	93.4 39.6
T. P. 694	45 02 21.64 71 29 33.74	192 35 346 55	T. P. 693 T. P. 695	97.7 82.5	T. P. 724	45 01 36.44 71 30 00.54	300 37 54 52	T. P. 723 T. P. 725	39.6 35.0
T. P. 695	45 02 19.04 71 29 32.89	166 55 22 04	T. P. 694 T. P. 696	82.5 78.3	T. P. 725	45 01 35.79 71 30 01.85	234 52 16 01	T. P. 724 T. P. 726	35.0 51.7
T. P. 696	45 02 16.69 71 29 34.23	202 04 359 14	T. P. 695 T. P. 697	78.3 195.7	T. P. 726	45 01 34.18 71 30 02.50	196 01 302 20	T. P. 725 T. P. 727	51.7 50.7
T. P. 697	45 02 10.35 71 29 34.11	179 14 20 09	T. P. 696 T. P. 698	195.7 194.6	T. P. 727	45 01 33.30 71 30 00.54	122 20 328 25	T. P. 726 T. P. 728	50.7 48.4
T. P. 698	45 02 04.43 71 29 37.17	200 09 329 12	T. P. 697 T. P. 699	194.6 81.4	T. P. 728	45 01 31.96 71 29 59.38	148 25 9 05	T. P. 727 T. P. 729	48.4 101.6
T. P. 699	45 02 02.17 71 29 35.27	149 12 356 24	T. P. 698 T. P. 700	81.4 34.0	T. P. 729	45 01 28.71 71 30 00.11	189 05 275 46	T. P. 728 T. P. 730	101.6 62.4
T. P. 700	45 02 01.07 71 29 35.17	176 24 43 07	T. P. 699 T. P. 701	34.0 48.8	T. P. 730	45 01 28.51 71 29 57.27	95 46 291 10	T. P. 729 T. P. 731	62.4 85.0
T. P. 701	45 01 59.92 71 29 36.70	223 07 72 19	T. P. 700 T. P. 702	48.8 52.0	T. P. 731	45 01 27.52 71 29 53.65	111 10 327 18	T. P. 730 T. P. 732	85.0 82.9
T. P. 702	45 01 59.41 71 29 38.96	252 19 88 57	T. P. 701 T. P. 703	52.0 95.5	T. P. 732	45 01 25.26 71 29 51.61	147 18 30 31	T. P. 731 T. P. 733	82.9 41.4
T. P. 703	45 01 59.33 71 29 43.32	268 37 25 24	T. P. 702 T. P. 704	95.5 25.4	T. P. 733	45 01 24.10 71 29 52.57	210 31 66 18	T. P. 732 T. P. 734	41.4 47.3
T. P. 704	45 01 58.59 71 29 43.81	205 24 304 35 118 51	T. P. 703 T. P. 705 Ref. Mon. 512-4	25.4 121.4 381.0	T. P. 734	45 01 23.48 71 29 54.55	246 18 98 59	T. P. 733 T. P. 735	47.3 55.5
Ref. Mon. 512-4	45 02 04.54 71 29 59.06	277 52 298 51	Pasture T. P. 704	809.5 381.0	T. P. 735	45 01 23.76 71 29 57.05	278 59 118 01	T. P. 734 T. P. 736	55.5 43.7
T. P. 705	45 01 56.36 71 29 39.24	124 35 341 36	T. P. 704 T. P. 706	121.4 28.8	T. P. 736	45 01 24.42 71 29 58.81	298 01 116 19	T. P. 735 T. P. 737	43.7 57.0
T. P. 706	45 01 55.48 71 29 38.82	161 36 39 23	T. P. 705 T. P. 707	28.8 72.0	T. P. 737	45 01 25.24 71 30 01.14	296 19 67 51	T. P. 736 T. P. 738	57.0 33.4
					T. P. 738	45 01 24.84 71 30 02.55	247 51 345 35	T. P. 737 T. P. 739	33.4 38.9

## BOUNDARY TURNING POINTS AND REFERENCE MONUMENTS—HALLS STREAM—Contd.

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° / ' "	° / '				° / ' "	° / '		
T. P. 739-----	45 01 23.62 71 30 02.11	165 35 354 11	T. P. 738----- T. P. 740-----	38.9 70.2	T. P. 754-----	45 01 09.05 71 30 00.43	69 47 349 06	T. P. 753----- T. P. 755-----	53.0 87.8
T. P. 740-----	45 01 21.36 71 30 01.79	174 11 306 20	T. P. 739----- T. P. 741-----	70.2 31.1	T. P. 755-----	45 01 06.26 71 29 59.68	169 06 38 06	T. P. 754----- T. P. 756-----	87.8 97.0
T. P. 741-----	45 01 20.76 71 30 00.65	126 20 13 16 75 17	T. P. 740----- T. P. 742----- Ref. Mon. 512-5-----	31.1 60.8 23.8	T. P. 756-----	45 01 03.78 71 30 02.41	218 06 109 16	T. P. 755----- T. P. 757-----	97.0 88.0
Ref. Mon. 512-5-----	45 01 20.57 71 30 01.70	49 48 255 17	Rock----- T. P. 741-----	83.0 23.8	T. P. 757-----	45 01 04.72 71 30 06.20	289 16 22 34	T. P. 756----- T. P. 758-----	88.0 46.5
T. P. 742-----	45 01 18.84 71 30 01.28	193 16 359 45	T. P. 741----- T. P. 743-----	60.8 70.3	T. P. 758-----	45 01 03.33 71 30 07.02	202 34 328 37 92 07	T. P. 757----- T. P. 759----- Ref. Mon. 512-6-----	46.5 69.0 131.4
T. P. 743-----	45 01 16.57 71 30 01.27	179 45 40 46	T. P. 742----- T. P. 744-----	70.3 65.0	Ref. Mon. 512-6-----	45 01 03.49 71 30 13.01	272 07 350 53	T. P. 758----- Mon. 518-----	131.4 464.1
T. P. 744-----	45 01 14.97 71 30 03.21	220 46 344 07	T. P. 743----- T. P. 745-----	65.0 76.1	T. P. 759-----	45 01 01.43 71 30 05.38	148 37 343 04	T. P. 758----- T. P. 760-----	69.0 63.6
T. P. 745-----	45 01 12.60 71 30 02.26	164 07 278 54	T. P. 744----- T. P. 746-----	76.1 34.6	T. P. 760-----	45 00 59.46 71 30 04.53	163 04 4 42	T. P. 759----- T. P. 761-----	63.6 56.5
T. P. 746-----	45 01 12.43 71 30 00.70	98 54 235 04	T. P. 745----- T. P. 747-----	34.6 58.6	T. P. 761-----	45 00 57.64 71 30 04.74	184 42 344 12	T. P. 760----- T. P. 762-----	56.5 33.6
T. P. 747-----	45 01 13.51 71 29 58.50	55 04 287 37	T. P. 746----- T. P. 748-----	58.6 39.0	T. P. 762-----	45 00 56.59 71 30 04.33	164 12 286 07	T. P. 761----- T. P. 763-----	33.6 79.9
T. P. 748-----	45 01 13.13 71 29 56.80	107 37 51 59	T. P. 747----- T. P. 749-----	39.0 121.7	T. P. 763-----	45 00 55.87 71 30 00.82	106 07 350 10	T. P. 762----- T. P. 764-----	79.9 64.1
T. P. 749-----	45 01 10.70 71 30 01.18	231 59 109 51	T. P. 748----- T. P. 750-----	121.7 75.3	T. P. 764-----	45 00 53.82 71 30 00.32	170 10 45 34	T. P. 763----- T. P. 765-----	64.1 82.5
T. P. 750-----	45 01 11.53 71 30 04.42	289 51 17 37	T. P. 749----- T. P. 751-----	75.3 51.7	T. P. 765-----	45 00 51.95 71 30 03.01	225 34 1 46	T. P. 764----- T. P. 766-----	82.5 74.0
T. P. 751-----	45 01 09.94 71 30 05.13	197 37 344 44	T. P. 750----- T. P. 752-----	51.7 40.8	T. P. 766-----	45 00 49.56 71 30 03.11	181 46 64 23	T. P. 765----- T. P. 767-----	74.0 61.9
T. P. 752-----	45 01 08.66 71 30 04.64	164 44 278 36	T. P. 751----- T. P. 753-----	40.8 42.8	T. P. 767-----	45 00 48.69 71 30 05.66	244 23 269 09 89 09	T. P. 766----- Ref. Mon. 517----- Mon. 518-----	61.9 104.7 87.5
T. P. 753-----	45 01 08.45 71 30 02.71	98 36 249 47	T. P. 752----- T. P. 754-----	42.8 53.0	Ref. Mon. 517-----	45 00 48.74 71 30 00.88	89 09 89 09	Mon. 518----- T. P. 767-----	192.2 104.7

GEOGRAPHIC POSITIONS OF MONUMENTS MARKING THE INTERNATIONAL BOUNDARY  
FROM HALLS STREAM TO THE ST. LAWRENCE RIVER

Station	Latitude and longitude	Azimuth	To station	Distance (meters)	Station	Latitude and longitude	Azimuth	To station	Distance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 518.....	45 00 48.65 71 30 09.65	269 09 11 89 09 11	T. P. 767..... Mon. 519.....	87.5 254.51	Mon. 531-B.....	45 00 41.31 71 43 01.65	270 17 23 90 17 23	Mon. 531-A..... Mon. 532.....	139.24 569.85
Mon. 519.....	45 00 48.53 71 30 21.28	269 09 03 89 08 58	Mon. 518..... Mon. 519-A.....	254.51 10.25	Mon. 532.....	45 00 41.40 71 43 27.68	270 17 05 89 46 58	Mon. 531-B..... Mon. 533.....	569.85 2,387.71
Mon. 519-A.....	45 00 48.53 71 30 21.75	269 08 58 89 08 58	Mon. 519..... Mon. 519-A2.....	10.25 23.30	Mon. 533.....	45 00 41.09 71 45 16.71	269 45 41 88 46 07	Mon. 532..... Mon. 534.....	2,387.71 2,061.87
Mon. 519-A2.....	45 00 48.52 71 30 22.81	269 08 57 89 08 57	Mon. 519-A..... Mon. 519-A3.....	23.30 39.70	Mon. 534.....	45 00 39.65 71 46 50.85	268 45 00 88 25 16	Mon. 533..... Mon. 534-A.....	2,061.87 802.04
Mon. 519-A3.....	45 00 48.50 71 30 24.62	269 08 56 89 08 56	Mon. 519-A2..... Mon. 519-A4.....	39.70 11.84	Mon. 534-A.....	45 00 38.93 71 47 27.46	268 24 50 88 24 50	Mon. 534..... Mon. 534-B.....	802.04 81.03
Mon. 519-A4.....	45 00 48.49 71 30 25.16	269 08 55 89 08 55	Mon. 519-A3..... Mon. 520.....	11.84 744.15	Mon. 534-B.....	45 00 38.86 71 47 31.15	268 24 47 88 24 47	Mon. 534-A..... Mon. 535.....	81.03 91.33
Mon. 520.....	45 00 48.13 71 30 59.14	269 08 31 88 40 00	Mon. 519-A4..... Mon. 520-A.....	744.15 253.73	Mon. 535.....	45 00 38.78 71 47 35.32	268 24 44 88 24 44	Mon. 534-B..... Mon. 535-A.....	91.33 79.04
Mon. 520-A.....	45 00 47.94 71 31 10.73	268 39 52 88 39 52	Mon. 520..... Mon. 521.....	253.73 622.09	Mon. 535-A.....	45 00 38.71 71 47 38.93	268 24 42 88 24 42	Mon. 535..... Mon. 535-B.....	79.04 99.53
Mon. 521.....	45 00 47.47 71 31 39.13	268 39 32 88 56 07	Mon. 520-A..... Mon. 521-A.....	622.09 934.14	Mon. 535-B.....	45 00 38.62 71 47 43.47	268 24 39 88 24 39	Mon. 535-A..... Mon. 535-C.....	99.53 229.66
Mon. 521-A.....	45 00 46.91 71 32 21.79	268 55 37 88 55 37	Mon. 521..... Mon. 522.....	934.14 1,448.82	Mon. 535-C.....	45 00 38.41 71 47 53.96	268 24 32 88 24 32	Mon. 535-B..... Mon. 535-D.....	229.66 66.65
Mon. 522.....	45 00 46.03 71 33 27.94	268 54 50 88 54 50	Mon. 521-A..... Mon. 522-A.....	1,448.82 206.27	Mon. 535-D.....	45 00 38.35 71 47 57.00	268 24 30 88 24 30	Mon. 535-C..... Mon. 535-E.....	66.65 53.86
Mon. 522-A.....	45 00 45.90 71 33 37.36	268 54 43 88 54 43	Mon. 522..... Mon. 522-A2.....	206.27 28.52	Mon. 535-E.....	45 00 38.30 71 47 59.46	268 24 28 88 24 28	Mon. 535-D..... Mon. 535-F.....	53.86 174.09
Mon. 522-A2.....	45 00 45.88 71 33 38.66	268 54 42 88 54 42	Mon. 522-A..... Mon. 522-A3.....	28.52 63.81	Mon. 535-F.....	45 00 38.14 71 48 07.40	268 24 22 88 24 22	Mon. 535-E..... Mon. 536.....	174.09 271.23
Mon. 522-A3.....	45 00 45.84 71 33 41.57	268 54 40 88 54 40	Mon. 522-A2..... Mon. 523.....	63.81 907.42	Mon. 536.....	45 00 37.90 71 48 19.79	268 24 13 87 36 36	Mon. 535-F..... Mon. 537.....	271.23 1,836.52
Mon. 523.....	45 00 45.28 71 34 23.01	268 54 11 90 36 25	Mon. 522-A3..... Mon. 523-A.....	907.42 826.45	Mon. 537.....	45 00 35.41 71 49 43.58	267 35 37 87 35 37	Mon. 536..... Mon. 538.....	1,836.52 62.87
Mon. 523-A.....	45 00 45.56 71 35 00.75	270 35 58 90 35 58	Mon. 523..... Mon. 524.....	826.45 350.29	Mon. 538.....	45 00 35.32 71 49 46.44	267 35 35 87 56 39	Mon. 537..... Mon. 538-A.....	62.87 1,416.50
Mon. 524.....	45 00 45.68 71 35 16.74	270 35 47 90 20 50	Mon. 523-A..... Mon. 525.....	350.29 801.55	Mon. 538-A.....	45 00 33.67 71 50 51.09	267 55 53 87 55 53	Mon. 538..... Mon. 538-B.....	1,416.50 3,225.74
Mon. 525.....	45 00 45.84 71 35 53.35	270 20 24 90 20 24	Mon. 524..... Mon. 525-A.....	801.55 534.79	Mon. 538-B.....	45 00 29.87 71 53 18.29	267 54 09 87 54 09	Mon. 538-A..... Mon. 539.....	3,225.74 1,339.52
Mon. 525-A.....	45 00 45.94 71 36 17.77	270 20 07 90 20 07	Mon. 525..... Mon. 526.....	534.79 651.56	Mon. 539.....	45 00 28.28 71 54 19.42	267 53 26 88 39 31	Mon. 538-B..... Mon. 539-A.....	1,339.52 501.70
Mon. 526.....	45 00 46.06 71 36 47.52	270 19 46 88 58 01	Mon. 525-A..... Site of Mon. 527.....	651.56 2,121.16	Mon. 539-A.....	45 00 27.90 71 54 42.32	268 39 15 88 39 15	Mon. 539..... Mon. 540.....	501.70 217.99
Site of Mon. 527 <sup>1</sup>	45 00 44.81 71 38 24.38	268 56 53 88 15 27	Mon. 526..... Mon. 527-A.....	2,121.16 392.24	Mon. 540.....	45 00 27.74 71 54 52.27	268 39 08 92 31 01	Mon. 539-A..... Mon. 540-A.....	217.99 543.99
Mon. 527-A.....	45 00 44.42 71 38 42.28	268 15 14 88 15 14	Site of Mon. 527..... Mon. 527-A2.....	392.24 714.48	Mon. 540-A.....	45 00 28.51 71 55 17.08	272 30 43 92 30 43	Mon. 540..... Mon. 541.....	543.99 666.96
Mon. 527-A2.....	45 00 43.71 71 39 14.89	268 14 51 88 14 51	Mon. 527-A..... Mon. 528.....	714.48 586.43	Mon. 541.....	45 00 29.45 71 55 47.51	272 30 22 91 17 22	Mon. 540-A..... Mon. 542.....	666.96 1,295.31
Mon. 528.....	45 00 43.13 71 39 41.66	268 14 32 87 06 27	Mon. 527-A2..... Mon. 529.....	586.43 450.05	Mon. 542.....	45 00 30.39 71 56 46.64	271 16 40 88 28 00	Mon. 541..... Mon. 543.....	1,295.31 740.09
Mon. 529.....	45 00 42.39 71 40 02.18	267 06 12 88 56 43	Mon. 528..... Mon. 530.....	450.05 2,370.78	Mon. 543.....	45 00 29.75 71 57 20.43	268 27 36 88 25 07	Mon. 542..... Mon. 544.....	740.09 934.85
Mon. 530.....	45 00 40.96 71 41 50.43	268 55 27 90 26 35	Mon. 529..... Mon. 531.....	2,370.78 1,031.85	Mon. 544.....	45 00 28.91 71 58 03.10	268 24 37 88 24 37	Mon. 543..... Mon. 545.....	934.85 3,159.90
Mon. 531.....	45 00 41.22 71 42 37.55	270 26 02 90 17 41	Mon. 530..... Mon. 531-A.....	1,031.85 388.61	Mon. 545.....	45 00 26.05 72 00 27.33	268 22 55 88 20 40	Mon. 544..... Mon. 545-A.....	3,159.90 220.28
Mon. 531-A.....	45 00 41.29 71 42 55.30	270 17 28 90 17 28	Mon. 531..... Mon. 531-B.....	388.61 139.24	Mon. 545-A.....	45 00 25.84 72 00 37.39	268 20 33 88 20 33	Mon. 545..... Mon. 546.....	220.28 562.40

<sup>1</sup> Position not re-marked. Point is now in Wallis Pond.



## BOUNDARY MONUMENTS—HALLS STREAM TO THE ST. LAWRENCE—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
Mon. 546-----	° ' " 45 00 25.32 72 01 03.06	° ' " 268 20 14 87 57 36	Mon. 545-A----- Mon. 546-A-----	562.40 483.43	Mon. 561-----	° ' " 45 00 21.55 72 08 47.39	° ' " 270 48 14 91 43 22	Mon. 560-A----- Mon. 562-----	200.50 402.41
Mon. 546-A-----	45 00 24.76 72 01 25.12	267 57 20 87 57 20	Mon. 546----- Mon. 547-----	483.43 143.56	Mon. 562-----	45 00 21.94 72 09 05.75	271 43 09 89 20 13	Mon. 561----- Mon. 563-----	402.41 1,371.78
Mon. 547-----	45 00 24.59 72 01 31.67	267 57 16 88 27 38	Mon. 546-A----- Mon. 548-----	143.56 563.07	Mon. 563-----	45 00 21.42 72 10 08.39	269 19 29 89 19 29	Mon. 562----- Mon. 563-A-----	1,371.78 178.67
Mon. 548-----	45 00 24.10 72 01 57.37	268 27 20 88 32 52	Mon. 547----- Mon. 548-A-----	563.07 628.21	Mon. 563-A-----	45 00 21.35 72 10 16.54	269 19 23 89 19 23	Mon. 563----- Mon. 564-----	178.67 181.08
Mon. 548-A-----	45 00 23.58 72 02 26.04	268 32 32 88 32 32	Mon. 548----- Mon. 548-B-----	628.21 303.10	Mon. 564-----	45 00 21.28 72 10 24.81	269 19 17 88 50 11	Mon. 563-A----- Mon. 564-A-----	181.08 56.71
Mon. 548-B-----	45 00 23.33 72 02 39.88	268 32 22 88 32 22	Mon. 548-A----- Mon. 549-----	303.10 820.59	Mon. 564-A-----	45 00 21.25 72 10 27.40	268 50 09 88 50 09	Mon. 564----- Mon. 565-----	56.71 601.44
Mon. 549-----	45 00 22.66 72 03 17.84	268 31 55 89 04 49	Mon. 548-B----- Mon. 549-A-----	820.59 489.89	Mon. 565-----	45 00 20.85 72 10 54.86	268 49 50 88 49 50	Mon. 564-A----- Mon. 565-A-----	601.44 122.05
Mon. 549-A-----	45 00 22.40 72 03 39.70	269 04 33 89 04 33	Mon. 549----- Mon. 550-----	489.89 139.05	Mon. 565-A-----	45 00 20.77 72 11 00.43	268 49 46 88 49 46	Mon. 565----- Mon. 565-B-----	122.05 146.54
Mon. 550-----	45 00 22.33 72 03 46.05	269 04 29 89 06 33	Mon. 549-A----- Mon. 551-----	139.05 489.03	Mon. 565-B-----	45 00 20.67 72 11 07.12	268 49 41 88 49 41	Mon. 565-A----- Mon. 566-----	146.54 938.78
Mon. 551-----	45 00 22.08 72 04 08.38	269 06 17 89 06 17	Mon. 550----- Mon. 551-A-----	489.03 593.21	Mon. 566-----	45 00 20.05 72 11 49.98	268 49 11 88 49 32	Mon. 565-B----- Mon. 567-----	938.78 658.39
Mon. 551-A-----	45 00 21.78 72 04 35.46	269 05 58 89 05 58	Mon. 551----- Mon. 551-B-----	593.21 1,329.24	Mon. 567-----	45 00 19.61 72 12 20.03	268 49 11 88 49 11	Mon. 566----- Mon. 568-----	658.39 207.27
Mon. 551-B-----	45 00 21.10 72 05 36.15	269 05 15 89 05 15	Mon. 551-A----- Mon. 552-----	1,329.24 191.97	Mon. 568-----	45 00 19.47 72 12 29.50	268 49 04 88 49 04	Mon. 567----- Mon. 569-----	207.27 172.84
Mon. 552-----	45 00 21.00 72 05 44.92	269 05 09 89 05 09	Mon. 551-B----- Mon. 552-A-----	191.97 49.30	Mon. 569-----	45 00 19.36 72 12 37.39	268 48 59 88 27 03	Mon. 568----- Mon. 570-----	172.84 61.92
Mon. 552-A-----	45 00 20.98 72 05 47.17	269 05 07 89 05 07	Mon. 552----- Mon. 553-----	49.30 166.36	Mon. 570-----	45 00 19.30 72 12 40.21	268 27 01 88 27 01	Mon. 569----- Mon. 571-----	61.92 1,643.21
Mon. 553-----	45 00 20.89 72 05 54.76	269 05 02 89 05 02	Mon. 552-A----- Mon. 554-----	166.36 101.36	Mon. 571-----	45 00 17.86 72 13 55.22	268 26 08 88 26 16	Mon. 570----- Mon. 572-----	1,643.21 1,906.39
Mon. 554-----	45 00 20.84 72 05 59.39	269 04 59 89 04 59	Mon. 553----- Mon. 554-A-----	101.36 52.68	Mon. 572-----	45 00 16.17 72 15 22.23	268 25 15 88 46 43	Mon. 571----- Mon. 572-A-----	1,906.39 95.92
Mon. 554-A-----	45 00 20.81 72 06 01.80	269 04 57 89 09 13	Mon. 554----- Mon. 555-----	52.68 490.86	Mon. 572-A-----	45 00 16.10 72 15 26.61	268 46 40 88 46 40	Mon. 572----- Mon. 573-----	95.92 132.06
Mon. 555-----	45 00 20.58 72 06 24.21	269 08 57 89 31 46	Mon. 554-A----- Mon. 555-A-----	490.86 172.63	Mon. 573-----	45 00 16.01 72 15 32.64	268 46 36 88 46 36	Mon. 572-A----- Mon. 573-A-----	132.06 187.36
Mon. 555-A-----	45 00 20.53 72 06 32.09	269 31 40 89 31 40	Mon. 555----- Mon. 555-B-----	172.63 160.01	Mon. 573-A-----	45 00 15.88 72 15 41.19	268 46 30 88 46 30	Mon. 573----- Mon. 573-B-----	187.36 372.83
Mon. 555-B-----	45 00 20.49 72 06 39.40	269 31 35 89 31 35	Mon. 555-A----- Mon. 555-C-----	160.01 9.82	Mon. 573-B-----	45 00 15.62 72 15 58.21	268 46 18 88 46 18	Mon. 573-A----- Mon. 574-----	372.83 360.81
Mon. 555-C <sup>2</sup> -----	45 00 20.48 72 06 39.84	269 31 35 89 31 35	Mon. 555-B----- Site of Mon. 556...	9.82 1.43	Mon. 574-----	45 00 15.37 72 16 14.68	268 46 06 90 11 14	Mon. 573-B----- Mon. 574-A-----	360.81 337.44
Site of Mon. 556 <sup>3</sup> -----	45 00 20.48 72 06 39.91	269 31 35 90 31 28	Mon. 555-C----- Mon. 556-A-----	1.43 451.12	Mon. 574-A-----	45 00 15.40 72 16 30.09	270 11 03 90 11 03	Mon. 574----- Mon. 575-----	337.44 506.14
Mon. 556-A-----	45 00 20.62 72 07 00.51	270 31 13 90 31 13	Site of Mon. 556... Mon. 557-----	451.12 446.49	Mon. 575-----	45 00 15.45 72 1 53.20	270 10 47 90 50 54	Mon. 574-A----- Mon. 575-A-----	506.14 186.49
Mon. 557-----	45 00 20.75 72 07 20.89	270 30 59 90 30 59	Mon. 557-A----- Mon. 557-A-----	446.49 285.48	Mon. 575-A-----	45 00 15.54 72 17 01.72	270 50 48 90 50 48	Mon. 575----- Mon. 576-----	186.49 793.94
Mon. 557-A-----	45 00 20.83 72 07 33.93	270 30 50 90 30 50	Mon. 557----- Mon. 558-----	285.48 112.32	Mon. 576-----	45 00 15.92 72 17 37.96	270 50 22 87 59 55	Mon. 575-A----- Mon. 577-----	793.94 882.17
Mon. 558-----	45 00 20.86 72 07 39.06	270 30 46 90 49 02	Mon. 557-A----- Mon. 558-A-----	112.32 364.30	Mon. 577-----	45 00 14.92 72 18 18.22	267 59 26 86 51 52	Mon. 576----- Mon. 578-----	882.17 586.20
Mon. 558-A-----	45 00 21.03 72 07 55.69	270 48 50 90 48 50	Mon. 558----- Mon. 559-----	364.30 239.35	Mon. 578-----	45 00 13.88 72 18 44.94	266 51 33 92 05 30	Mon. 577----- Mon. 579-----	586.20 181.58
Mon. 559-----	45 00 21.14 72 08 06.62	270 48 42 90 48 42	Mon. 558-A----- Mon. 559-A-----	239.35 567.90	Mon. 579-----	45 00 14.09 72 18 53.23	272 05 24 95 55 03	Mon. 578----- Mon. 580-----	181.58 344.38
Mon. 559-A-----	45 00 21.40 72 08 32.55	270 48 24 90 48 24	Mon. 559----- Mon. 560-----	567.90 26.72	Mon. 580-----	45 00 15.24 72 19 08.87	275 54 52 94 42 15	Mon. 579----- Mon. 581-----	344.38 1,218.92
Mon. 560-----	45 00 21.41 72 08 33.77	270 48 23 90 48 23	Mon. 559-A----- Mon. 560-A-----	26.72 97.81	Mon. 581-----	45 00 18.48 72 20 04.34	274 41 36 92 41 44	Mon. 580----- Mon. 581-A-----	1,218.92 751.00
Mon. 560-A-----	45 00 21.46 72 08 38.23	270 48 20 90 48 20	Mon. 560----- Mon. 561-----	97.81 200.50	Mon. 581-A-----	45 00 19.62 72 20 38.59	272 41 20 92 41 20	Mon. 581----- Mon. 581-B-----	751.00 369.72

<sup>2</sup> Undermined and destroyed by river.<sup>3</sup> Position not re-marked. Point is now in Tomifobia River.

## BOUNDARY MONUMENTS—HALLS STREAM TO THE ST. LAWRENCE—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 581-B	45 00 20.19 72 20 55.45	272 41 08 92 41 08	Mon. 581-A	369.72	Mon. 597	45 00 47.44 72 36 17.36	276 20 21 94 11 38	Mon. 596-B	1,157.27
			Mon. 582	1,612.02				Mon. 597-A	431.14
Mon. 582	45 00 22.63 72 22 08.98	272 40 16 91 14 20	Mon. 581-B	1,612.02	Mon. 597-A	45 00 48.46 72 36 37.00	274 11 24 94 11 24	Mon. 597	431.14
			Mon. 582-A	368.19				Mon. 597-B	271.81
Mon. 582-A	45 00 22.88 72 22 25.78	271 14 08 91 14 08	Mon. 582	368.19	Mon. 597-B	45 00 49.10 72 36 49.38	274 11 15 94 11 15	Mon. 597-A	271.81
			Mon. 583	128.72				Mon. 598	462.87
Mon. 583	45 00 22.98 72 22 31.66	271 14 04 91 14 04	Mon. 582-A	128.72	Mon. 598	45 00 50.20 72 37 10.46	274 11 00 94 11 00	Mon. 597-B	462.87
			Mon. 584	323.89				Mon. 598-A	641.01
Mon. 584	45 00 23.20 72 22 46.45	271 13 54 88 58 14	Mon. 583	323.89	Mon. 598-A	45 00 51.71 72 37 39.65	274 10 40 94 10 40	Mon. 598	641.01
			Mon. 584-A	408.53				Mon. 599	563.65
Mon. 584-A	45 00 22.96 72 23 05.10	268 58 01 88 58 01	Mon. 584	408.53	Mon. 599	45 00 53.11 72 38 06.69	274 10 21 91 07 37	Mon. 598-A	593.65
			Mon. 585	298.16				Mon. 599-A	1,568.70
Mon. 585	45 00 22.79 72 23 18.71	268 57 51 92 59 43	Mon. 584-A	298.16	Mon. 599-A	45 00 54.10 72 39 18.32	271 06 46 91 06 46	Mon. 599	1,568.70
			Mon. 586	467.92				Mon. 600	620.56
Mon. 586	45 00 23.58 72 23 40.05	272 59 28 92 59 28	Mon. 585	467.92	Mon. 600	45 00 54.49 72 39 46.66	271 06 26 91 06 26	Mon. 599-A	620.56
			Mon. 587	1,319.11				Mon. 601	80.40
Mon. 587	45 00 25.80 72 24 40.20	272 58 45 92 58 45	Mon. 586	1,319.11	Mon. 601	45 00 54.54 72 39 50.33	271 06 23 91 06 23	Mon. 600	80.40
			Mon. 587-A	200.62				Mon. 601-A	791.01
Mon. 587-A	45 00 26.14 72 24 49.35	272 58 39 92 58 39	Mon. 587	200.62	Mon. 601-A	45 00 55.04 72 40 26.44	271 05 58 91 05 58	Mon. 601	791.01
			Mon. 588	234.30				Mon. 602	93.43
Mon. 588	45 00 26.54 72 25 00.03	272 58 31 92 58 31	Mon. 587-A	234.30	Mon. 602	45 00 55.10 72 40 30.71	271 05 55 91 05 55	Mon. 601-A	93.43
			Mon. 588-A	341.04				Mon. 603	733.37
Mon. 588-A	45 00 27.11 72 25 15.58	272 58 20 92 58 20	Mon. 588	341.04	Mon. 603	45 00 55.55 72 41 04.19	271 05 31 91 05 31	Mon. 602	733.37
			Mon. 588-B	1,191.75				Mon. 603-A	837.09
Mon. 588-B	45 00 29.10 72 26 09.93	272 57 42 92 57 42	Mon. 588-A	1,191.75	Mon. 603-A	45 00 56.06 72 41 42.42	271 05 05 91 05 05	Mon. 603	837.09
			Mon. 589	506.86				Mon. 604	423.98
Mon. 589	45 00 29.95 72 26 33.04	272 57 26 92 57 26	Mon. 588-B	506.86	Mon. 604	45 00 56.32 72 42 01.78	271 04 51 91 04 51	Mon. 603-A	423.98
			Mon. 590	667.25				Mon. 605	232.96
Mon. 590	45 00 31.07 72 27 03.47	272 57 04 90 45 54	Mon. 589	667.25	Mon. 605	45 00 56.46 72 42 12.41	271 04 43 90 33 36	Mon. 604	232.96
			Mon. 591	2,253.82				Mon. 605-A	1,189.98
Mon. 591	45 00 32.03 72 28 46.38	270 44 41 88 37 48	Mon. 590	2,253.82	Mon. 605-A	45 00 56.84 72 43 06.76	270 32 58 90 32 58	Mon. 605	1,189.98
			Mon. 591-A	401.35				Mon. 605-B	747.16
Mon. 591-A	45 00 31.72 72 29 04.70	268 37 35 88 37 35	Mon. 591	401.35	Mon. 605-B	45 00 57.07 72 43 40.88	270 32 34 90 32 34	Mon. 605-A	747.16
			Mon. 591-B	226.89				Mon. 606	504.14
Mon. 591-B	45 00 31.54 72 29 15.06	268 37 28 88 37 28	Mon. 591-A	226.89	Mon. 606	45 00 57.22 72 44 03.90	270 32 17 88 49 26	Mon. 605-B	504.14
			Mon. 592	108.87				Mon. 606-A	844.97
Mon. 592	45 00 31.46 72 29 20.03	268 37 24 88 18 14	Mon. 591-B	108.87	Mon. 606-A	45 00 56.66 72 44 42.48	268 48 59 88 48 59	Mon. 606	844.97
			Mon. 592-A	1,146.35				Mon. 607	280.15
Mon. 592-A	45 00 30.35 72 30 12.36	268 17 37 88 17 37	Mon. 592	1,146.35	Mon. 607	45 00 56.47 72 44 55.27	268 48 50 90 45 37	Mon. 606-A	280.15
			Mon. 593	2,209.28				Mon. 608	1,725.83
Mon. 593	45 00 28.21 72 31 53.19	268 16 26 90 49 57	Mon. 592-A	2,209.28	Mon. 608	45 00 57.21 72 46 14.08	270 44 41 90 44 41	Mon. 607	1,725.83
			Mon. 593-A	206.08				Mon. 608-A	577.54
Mon. 593-A	45 00 28.31 72 32 02.60	270 49 50 90 49 50	Mon. 593	206.08	Mon. 608-A	45 00 57.45 72 46 40.46	270 44 22 90 44 22	Mon. 608	577.54
			Mon. 593-B	425.43				Mon. 608-B	1,699.52
Mon. 593-B	45 00 28.51 72 32 22.02	270 49 37 90 49 37	Mon. 593-A	425.43	Mon. 608-B	45 00 58.15 72 47 58.07	270 43 27 90 43 27	Mon. 608-A	1,699.52
			Mon. 594	1,298.42				Mon. 608-C	142.83
Mon. 594	45 00 29.11 72 33 21.31	270 48 55 99 41 00	Mon. 593-B	1,298.42	Mon. 608-C	45 00 58.21 72 48 04.59	270 43 23 90 43 23	Mon. 608-B	142.83
			Mon. 594-A	1,095.33				Mon. 609	84.00
Mon. 594-A	45 00 35.07 72 34 10.61	279 40 25 99 40 25	Mon. 594	1,095.33	Mon. 609	45 00 58.24 72 48 08.42	270 43 20 90 43 20	Mon. 608-C	84.00
			Mon. 594-B	220.54				Mon. 609-A	680.81
Mon. 594-B	45 00 36.28 72 34 20.54	279 40 18 99 40 18	Mon. 594-A	220.54	Mon. 609-A	45 00 58.52 72 48 39.52	270 42 58 90 42 58	Mon. 609	680.81
			Mon. 594-C	168.31				Mon. 610	856.01
Mon. 594-C	45 00 37.19 72 34 28.12	279 40 12 99 40 12	Mon. 594-B	168.31	Mon. 610	45 00 58.86 72 49 18.61	270 42 31 91 13 06	Mon. 609-A	856.01
			Mon. 594-D	512.24				Mon. 611	329.23
Mon. 594-D	45 00 39.98 72 34 51.18	279 39 56 99 39 56	Mon. 594-C	512.24	Mon. 611	45 00 59.09 72 49 33.64	271 12 55 91 12 55	Mon. 610	329.23
			Mon. 595	351.01				Mon. 612	734.47
Mon. 595	45 00 41.89 72 35 06.98	279 39 44 96 21 11	Mon. 594-D	351.01	Mon. 612	45 00 59.59 72 50 07.17	271 12 31 91 12 31	Mon. 611	734.47
			Mon. 596	106.12				Mon. 613	590.76
Mon. 596	45 00 42.27 72 35 11.80	276 21 08 96 21 08	Mon. 595	106.12	Mon. 613	45 01 00.00 72 50 34.15	271 12 12 91 12 12	Mon. 612	590.76
			Mon. 596-A	22.82				Mon. 614	370.68
Mon. 596-A	45 00 42.35 72 35 12.83	276 21 07 96 21 07	Mon. 596	22.82	Mon. 614	45 01 00.25 72 50 51.07	271 12 00 88 34 00	Mon. 613	370.68
			Mon. 596-B	264.48				Mon. 614-A	242.33
Mon. 596-B	45 00 43.30 72 35 24.84	276 20 59 96 20 59	Mon. 596-A	264.48	Mon. 614-A	45 01 00.05 72 51 02.14	268 33 52 88 33 52	Mon. 614	242.33
			Mon. 597	1,157.27				Mon. 614-B	127.40

## BOUNDARY MONUMENTS—HALLS STREAM TO THE ST. LAWRENCE—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 614-B-----	45 00 59.95 72 51 07.97	268 33 48 88 33 48	Mon. 614-A----- Mon. 614-C-----	127.40 175.76	Mon. 627-A-----	45 00 57.40 73 03 36.46	271 18 37 91 18 37	Mon. 627----- Mon. 628-----	177.16 278.98
Mon. 614-C-----	45 00 59.81 72 51 15.99	268 33 42 88 33 42	Mon. 614-B----- Mon. 614-D-----	175.76 73.99	Mon. 628-----	45 00 57.61 73 03 49.20	271 18 28 91 18 28	Mon. 627-A----- Mon. 629-----	278.98 174.11
Mon. 614-D-----	45 00 59.75 72 51 19.37	268 33 40 88 33 40	Mon. 614-C----- Mon. 615-----	73.99 965.99	Mon. 629-----	45 00 57.74 73 03 57.15	271 18 22 87 59 42	Mon. 628----- Mon. 629-A-----	174.11 108.53
Mon. 615-----	45 00 58.96 72 52 03.47	268 33 09 85 44 44	Mon. 614-D----- Mon. 616-----	965.99 154.75	Mon. 629-A-----	45 00 57.61 73 04 02.10	267 59 39 87 59 39	Mon. 629----- Mon. 629-B-----	108.53 350.98
Mon. 616-----	45 00 58.59 72 52 10.52	265 44 39 88 33 40	Mon. 615----- Mon. 616-A-----	154.75 1,572.87	Mon. 629-B-----	45 00 57.22 73 04 18.12	267 59 27 87 59 27	Mon. 629-A----- Mon. 631-----	350.98 425.57
Mon. 616-A-----	45 00 57.50 72 53 22.33	268 46 06 88 46 06	Mon. 616----- Mon. 616-B-----	1,572.87 220.57	Mon. 629-C-----	45 00 56.73 73 04 37.55	267 59 14 87 59 14	Mon. 629-B----- Mon. 629-D-----	425.57 232.65
Mon. 616-B-----	45 00 57.34 72 53 32.40	268 45 59 88 45 59	Mon. 616-A----- Mon. 616-C-----	220.57 1,062.72	Mon. 629-D-----	45 00 56.47 73 04 48.16	267 59 06 87 59 06	Mon. 629-C----- Mon. 629-E-----	232.65 352.60
Mon. 616-C-----	45 00 56.60 72 54 20.93	268 45 25 88 45 25	Mon. 616-B----- Mon. 617-----	1,062.72 82.97	Mon. 629-E-----	45 00 56.06 73 05 04.26	267 58 55 87 58 55	Mon. 629-D----- Mon. 630-----	352.60 71.66
Mon. 617-----	45 00 56.54 72 54 24.72	268 45 22 88 45 22	Mon. 616-C----- Mon. 618-----	82.97 181.80	Mon. 630-----	45 00 55.98 73 05 07.53	267 58 52 87 58 52	Mon. 629-E----- Mon. 630-A-----	71.66 30.34
Mon. 618-----	45 00 56.41 72 54 33.02	268 45 16 88 00 36	Mon. 617----- Mon. 618-A-----	181.80 712.07	Mon. 630-A-----	45 00 55.95 73 05 08.91	267 58 52 87 58 52	Mon. 630----- Mon. 630-B-----	30.34 170.11
Mon. 618-A-----	45 00 55.61 72 55 05.52	268 00 13 88 00 13	Mon. 618----- Mon. 618-B-----	712.07 159.46	Mon. 630-B-----	45 00 55.76 73 05 16.68	267 58 46 87 58 46	Mon. 630-A----- Mon. 631-----	170.11 221.91
Mon. 618-B-----	45 00 55.43 72 55 12.79	268 00 08 88 00 08	Mon. 618-A----- Mon. 619-----	159.46 1,062.24	Mon. 631-----	45 00 55.50 73 05 26.80	267 58 39 88 31 13	Mon. 630-B----- Mon. 632 and 633-----	221.91 8,106.44
Mon. 619-----	45 00 54.23 72 56 01.28	267 59 34 87 59 34	Mon. 618-B----- Mon. 619-A-----	1,062.24 320.68	Mon. 632 and 633-----	45 00 48.55 73 11 36.89	268 26 51 88 26 51	Mon. 631----- Mon. 634-----	8,106.44 1,352.91
Mon. 619-A-----	45 00 53.86 72 56 15.91	267 59 24 87 59 24	Mon. 619----- Mon. 619-B-----	320.68 432.04	Mon. 634-----	45 00 47.36 73 12 38.65	268 26 07 88 26 07	Mon. 632 and 633----- Mon. 635-----	1,352.91 164.38
Mon. 619-B-----	45 00 53.37 72 56 35.63	267 59 10 87 59 10	Mon. 619-A----- Mon. 620-----	432.04 1,904.30	Mon. 635-----	45 00 47.21 73 12 46.15	268 26 02 88 26 02	Mon. 634----- Mon. 635-A-----	164.38 26.13
Mon. 620-----	45 00 51.20 72 58 02.54	267 58 08 91 44 51	Mon. 619-B----- Mon. 620-A-----	1,904.30 534.81	Mon. 635-A-----	45 00 47.19 73 12 47.34	268 26 01 88 26 01	Mon. 635----- Mon. 635-B-----	26.13 70.04
Mon. 620-A-----	45 00 51.72 72 58 26.95	271 44 34 91 44 34	Mon. 620----- Mon. 620-B-----	534.81 268.43	Mon. 635-B-----	45 00 47.13 73 12 50.54	268 25 59 88 25 59	Mon. 635-A----- Mon. 636-----	70.04 255.58
Mon. 620-B-----	45 00 51.99 72 58 39.21	271 44 25 91 44 25	Mon. 620-A----- Mon. 621-----	268.43 69.96	Mon. 636-----	45 00 46.90 73 13 02.21	268 25 50 88 25 50	Mon. 635-B----- Mon. 637-----	255.58 755.63
Mon. 621-----	45 00 52.06 72 58 42.40	271 44 23 91 44 23	Mon. 620-B----- Mon. 621-A-----	69.96 302.80	Mon. 637-----	45 00 46.23 73 13 36.70	268 25 26 88 47 56	Mon. 636----- Mon. 637-A-----	755.63 954.42
Mon. 621-A-----	45 00 52.36 72 58 56.22	271 44 13 91 44 13	Mon. 621----- Mon. 621-B-----	302.80 1,121.67	Mon. 637-A-----	45 00 45.58 73 14 20.28	268 47 26 88 47 26	Mon. 637----- Mon. 637-B-----	954.42 266.12
Mon. 621-B-----	45 00 53.45 72 59 47.42	271 43 37 91 43 37	Mon. 621-A----- Mon. 622-----	1,121.67 44.53	Mon. 637-B-----	45 00 45.40 73 14 32.43	268 47 17 88 47 17	Mon. 637-A----- Mon. 638-----	266.12 87.67
Mon. 622-----	45 00 53.50 72 59 49.45	271 43 36 91 30 03	Mon. 621-B----- Mon. 622-A-----	44.53 1,016.87	Mon. 638-----	45 00 45.34 73 14 36.43	268 47 14 88 47 14	Mon. 637-B----- Mon. 638-A-----	87.67 78.63
Mon. 622-A-----	45 00 54.36 73 00 35.87	271 29 30 91 29 30	Mon. 622----- Mon. 623-----	1,016.87 535.47	Mon. 638-A-----	45 00 45.28 73 14 40.02	268 47 12 88 47 12	Mon. 638----- Mon. 638-B-----	78.63 165.56
Mon. 623-----	45 00 54.81 73 01 00.32	271 29 13 91 29 13	Mon. 622-A----- Mon. 624-----	535.47 244.22	Mon. 638-B-----	45 00 45.17 73 14 47.58	268 47 06 88 47 06	Mon. 638-A----- Mon. 639-----	165.56 311.93
Mon. 624-----	45 00 55.01 73 01 11.47	271 29 05 91 29 05	Mon. 623----- Mon. 625-----	244.22 128.82	Mon. 639-----	45 00 44.95 73 15 01.82	268 46 56 88 46 56	Mon. 638-B----- Mon. 639-A-----	311.93 1,592.68
Mon. 625-----	45 00 55.12 73 01 17.35	271 29 01 91 20 15	Mon. 624----- Mon. 625-A-----	128.82 401.02	Mon. 639-A-----	45 00 43.85 73 16 14.54	268 46 05 88 46 05	Mon. 639----- Mon. 640-----	1,592.68 172.78
Mon. 625-A-----	45 00 55.42 73 01 35.66	271 20 02 91 20 02	Mon. 625----- Mon. 625-B-----	401.02 795.63	Mon. 640-----	45 00 43.73 73 16 22.43	268 45 59 88 26 59	Mon. 639-A----- Mon. 640-A-----	172.78 553.26
Mon. 625-B-----	45 00 56.02 73 02 11.98	271 19 36 91 19 36	Mon. 625-A----- Mon. 625-C-----	795.63 444.00	Mon. 640-A-----	45 00 43.24 73 16 47.68	268 26 42 88 26 42	Mon. 640----- Mon. 640-B-----	553.26 57.38
Mon. 625-C-----	45 00 56.35 73 02 32.26	271 19 22 91 19 22	Mon. 625-B----- Mon. 626-----	444.00 466.57	Mon. 640-B-----	45 00 43.20 73 16 50.30	268 26 40 88 26 40	Mon. 640-A----- Mon. 641-----	57.38 46.58
Mon. 626-----	45 00 56.70 73 02 53.56	271 19 07 91 19 07	Mon. 625-C----- Mon. 626-A-----	466.57 152.69	Mon. 641-----	45 00 43.15 73 16 52.43	268 26 38 88 26 38	Mon. 640-B----- Mon. 641-A-----	46.58 118.31
Mon. 626-A-----	45 00 56.81 73 03 00.53	271 19 02 91 19 02	Mon. 626----- Mon. 627-----	152.69 609.88	Mon. 641-A-----	45 00 43.05 73 16 57.83	268 26 34 88 26 34	Mon. 641----- Mon. 641-B-----	118.31 481.10
Mon. 627-----	45 00 57.27 73 03 28.38	271 18 42 91 18 42	Mon. 626-A----- Mon. 627-A-----	609.88 177.16	Mon. 641-B-----	45 00 42.63 73 17 19.79	268 26 19 88 26 19	Mon. 641-A----- Mon. 641-C-----	481.10 409.92



## BOUNDARY MONUMENTS—HALLS STREAM TO THE ST. LAWRENCE—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 641-C	45 00 42.26 73 17 38.50	268 26 06 88 26 06	Mon. 641-B Mon. 642	409.92 203.61	Mon. 661	45 00 24.04 73 31 57.73	267 27 26 87 28 22	Mon. 660 Mon. 662	1,181.14 797.93
Mon. 642	45 00 42.08 73 17 47.80	268 25 59 88 25 59	Mon. 641-C Mon. 642-A	203.61 558.97	Mon. 662	45 00 22.90 73 32 34.13	267 27 56 87 26 38	Mon. 661 Mon. 663	797.93 800.03
Mon. 642-A	45 00 41.59 73 18 13.31	268 25 41 88 25 41	Mon. 642 Mon. 642-B	558.97 135.91	Mon. 663	45 00 21.74 73 33 10.63	267 26 12 87 24 49	Mon. 662 Mon. 663-A	800.03 604.24
Mon. 642-B	45 00 41.47 73 18 19.52	268 25 37 88 25 37	Mon. 642-A Mon. 643	135.91 238.23	Mon. 663-A	45 00 20.86 73 33 38.19	267 24 29 87 24 27	Mon. 663 Mon. 664	604.24 299.67
Mon. 643	45 00 41.26 73 18 30.39	268 25 29 88 25 29	Mon. 642-B Mon. 643-A	238.23 709.38	Mon. 664	45 00 20.42 73 33 51.86	267 24 18 87 25 38	Mon. 663-A Mon. 665	299.67 686.67
Mon. 643-A	45 00 40.62 73 19 02.78	268 25 06 88 25 06	Mon. 643 Mon. 643-B	709.38 264.05	Mon. 665	45 00 19.42 73 34 23.18	267 25 16 87 43 35	Mon. 664 Mon. 665-A	686.67 593.24
Mon. 643-B	45 00 40.39 73 19 14.83	268 24 58 88 24 58	Mon. 643-A Mon. 643-C	264.05 441.30	Mon. 665-A	45 00 18.66 73 34 50.25	267 43 16 87 43 07	Mon. 665 Mon. 666	593.24 580.26
Mon. 643-C	45 00 39.99 73 19 34.97	268 24 43 88 24 43	Mon. 643-B Mon. 643-D	441.30 222.17	Mon. 666	45 00 17.91 73 35 16.72	267 42 48 87 43 45	Mon. 665-A Mon. 667	580.26 657.72
Mon. 643-D	45 00 39.79 73 19 45.11	268 24 36 88 24 36	Mon. 643-C Mon. 644	222.17 501.25	Mon. 667	45 00 17.06 73 35 46.73	267 43 24 87 45 24	Mon. 666 Mon. 668	657.72 577.32
Mon. 644	45 00 39.34 73 20 08.00	268 24 20 88 43 29	Mon. 643-D Site of Mon. 645	501.25 1,287.26	Mon. 668	45 00 16.33 73 36 13.07	267 45 06 87 37 57	Mon. 667 Mon. 669	577.32 373.04
Site of Mon. 645	45 00 38.41 73 21 06.76	268 42 47 88 59 21	Mon. 644 Mon. 645-A	1,287.26 132.32	Mon. 669	45 00 15.83 73 36 30.09	267 37 45 87 29 48	Mon. 668 Mon. 670	373.04 870.92
Mon. 645-A	45 00 38.33 73 21 12.81	268 59 17 88 59 17	Site of Mon. 645 Mon. 646	132.32 396.50	Mon. 670	45 00 14.60 73 37 09.82	267 29 20 87 28 56	Mon. 669 Mon. 671	870.92 994.86
Mon. 646	45 00 38.10 73 21 30.91	268 59 04 88 58 36	Mon. 645-A Mon. 647	396.50 1,039.21	Mon. 671	45 00 13.18 73 37 55.20	267 28 24 87 27 42	Mon. 670 Mon. 672	994.86 944.98
Mon. 647	45 00 37.50 73 22 18.36	268 58 02 89 01 01	Mon. 646 Mon. 648	1,039.21 406.02	Mon. 672	45 00 11.82 73 38 38.31	267 27 11 87 28 50	Mon. 671 Mon. 673	944.98 534.11
Mon. 648	45 00 37.27 73 22 36.90	269 00 48 88 58 32	Mon. 647 Mon. 649	406.02 1,161.63	Mon. 673	45 00 11.06 73 39 02.67	267 28 33 89 27 20	Mon. 672 Mon. 674	534.11 144.30
Mon. 649	45 00 36.60 73 23 29.94	268 57 54 88 33 47	Mon. 648 Mon. 650	1,161.63 732.44	Mon. 674	45 00 11.02 73 39 09.26	269 27 15 89 22 21	Mon. 673 Mon. 674-A	144.30 634.64
Mon. 650	45 00 36.00 73 24 03.37	268 33 23 88 31 32	Mon. 649 Mon. 650-A	732.44 613.27	Mon. 674-A	45 00 10.79 73 39 38.23	269 22 01 89 22 22	Mon. 674 Mon. 675	634.64 556.62
Mon. 650-A	45 00 35.49 73 24 31.37	268 31 13 88 31 25	Mon. 650 Mon. 651	613.27 484.50	Mon. 675	45 00 10.59 73 40 03.64	269 22 04 90 05 25	Mon. 674-A Mon. 676	556.62 642.20
Mon. 651	45 00 35.09 73 24 53.48	268 31 10 88 33 24	Mon. 650-A Mon. 651-A	484.50 283.04	Mon. 676	45 00 10.62 73 40 32.97	270 05 04 90 47 17	Mon. 675 Mon. 676-A	642.20 487.79
Mon. 651-A	45 00 34.86 73 25 06.40	268 33 15 88 30 20	Mon. 651 Mon. 652	283.04 785.74	Mon. 676-A	45 00 10.84 73 40 55.24	270 47 01 90 46 53	Mon. 676 Mon. 677	487.79 846.86
Mon. 652	45 00 34.19 73 25 42.27	268 29 55 88 10 03	Mon. 651-A Mon. 652-A	785.74 809.17	Mon. 677	45 00 11.21 73 41 33.90	270 46 26 90 45 04	Mon. 676-A Mon. 678	846.86 1,042.05
Mon. 652-A	45 00 33.35 73 26 19.20	268 09 36 88 11 57	Mon. 652 Mon. 653	809.17 282.72	Mon. 678	45 00 11.65 73 42 21.48	270 44 30 89 57 18	Mon. 677 Mon. 678-A	1,042.05 883.88
Mon. 653	45 00 33.06 73 26 32.11	268 11 48 88 09 08	Mon. 652-A Mon. 654	282.72 874.85	Mon. 678-A	45 00 11.63 73 43 01.83	269 56 49 89 56 12	Mon. 678 Mon. 679	883.88 116.97
Mon. 654	45 00 32.15 73 27 12.04	268 08 40 88 09 40	Mon. 653 Mon. 655	874.85 594.35	Mon. 679	45 00 11.62 73 43 07.17	269 56 08 89 57 59	Mon. 678-A Mon. 679-A	116.97 391.08
Mon. 655	45 00 31.53 73 27 39.16	268 09 20 88 08 36	Mon. 654 Mon. 656	594.35 905.46	Mon. 679-A	45 00 11.61 73 43 25.03	269 57 46 89 57 54	Mon. 679 Mon. 680	391.08 489.27
Mon. 656	45 00 30.58 73 28 20.49	268 08 07 87 47 15	Mon. 655 Mon. 657	905.46 789.63	Mon. 680	45 00 11.60 73 43 47.37	269 57 38 89 56 36	Mon. 679-A Mon. 681	489.27 1,311.83
Mon. 657	45 00 29.59 73 28 56.52	267 46 49 87 46 06	Mon. 656 Mon. 657-A	789.63 234.07	Mon. 681	45 00 11.56 73 44 47.27	269 55 53 89 55 51	Mon. 680 Mon. 682	1,311.83 827.61
Mon. 657-A	45 00 29.29 73 29 07.20	267 45 58 87 45 40	Mon. 657 Mon. 658	234.07 571.42	Mon. 682	45 00 11.52 73 45 25.05	269 55 24 89 26 58	Mon. 681 Mon. 683	827.61 868.53
Mon. 658	45 00 28.57 73 29 33.27	267 45 21 87 28 51	Mon. 657-A Mon. 659	571.42 1,112.41	Mon. 683	45 00 11.25 73 46 04.71	269 26 30 89 26 04	Mon. 682 Mon. 684	868.53 561.10
Mon. 659	45 00 28.98 73 30 24.02	267 28 15 87 28 56	Mon. 658 Mon. 660	1,112.41 873.24	Mon. 684	45 00 11.07 73 46 30.33	269 25 46 89 25 19	Mon. 683 Mon. 685	561.10 711.06
Mon. 660	45 00 25.74 73 31 03.85	267 28 28 87 28 04	Mon. 659 Mon. 661	873.24 1,181.14	Mon. 685	45 00 10.83 73 47 02.79	269 24 56 88 52 49	Mon. 684 Mon. 686	711.06 731.10

\*Monument destroyed by floating ice.

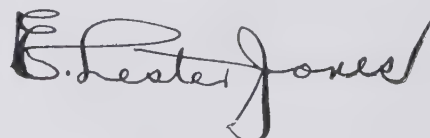
## BOUNDARY MONUMENTS—HALLS STREAM TO THE ST. LAWRENCE—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 686-----	45 00 10.37 73 47 36.17	268 52 26 88 52 18	Mon. 685----- Mon. 687-----	731.10 698.95	Mon. 716-----	44 59 34.04 74 06 38.91	266 52 56 86 52 13	Mon. 715----- Mon. 717-----	970.38 967.73
Mon. 687-----	45 00 09.92 73 48 08.07	268 51 55 88 50 40	Mon. 686----- Mon. 688-----	698.95 235.10	Mon. 717-----	44 59 32.32 74 07 23.02	266 51 42 87 23 44	Mon. 716----- Mon. 718-----	967.73 955.70
Mon. 688-----	45 00 09.77 73 48 18.81	268 50 33 88 51 38	Mon. 687----- Mon. 689-----	235.10 1,478.64	Mon. 718-----	44 59 30.92 74 08 06.60	267 23 13 87 24 00	Mon. 717----- Mon. 719-----	955.70 966.54
Mon. 689-----	45 00 08.81 73 49 26.31	268 50 51 88 50 23	Mon. 688----- Mon. 690-----	1,478.64 1,413.43	Mon. 719-----	44 59 29.49 74 08 50.68	267 23 29 87 20 25	Mon. 718----- Mon. 720-----	966.54 253.28
Mon. 690-----	45 00 07.88 73 50 30.83	268 49 38 87 46 01	Mon. 689----- Mon. 691-----	1,413.43 680.06	Mon. 720-----	44 59 29.11 74 09 02.23	267 20 16 91 24 57	Mon. 719----- Mon. 721-----	253.28 686.44
Mon. 691-----	45 00 07.02 73 51 01.86	267 45 39 87 46 14	Mon. 690----- Mon. 692-----	680.06 930.84	Mon. 721-----	44 59 29.66 74 09 33.56	271 24 35 91 24 48	Mon. 720----- Mon. 722-----	686.44 582.15
Mon. 692-----	45 00 05.84 73 51 44.32	267 45 44 87 44 45	Mon. 691----- Mon. 693-----	930.84 848.01	Mon. 722-----	44 59 30.12 74 10 00.12	271 24 30 90 57 00	Mon. 721----- Mon. 722-A-----	582.15 677.66
Mon. 693-----	45 00 04.76 73 52 23.01	267 44 18 87 45 15	Mon. 692----- Mon. 694-----	848.01 804.34	Mon. 722-A-----	44 59 30.49 74 10 31.05	270 56 38 90 56 37	Mon. 722----- Mon. 723-----	677.66 487.76
Mon. 694-----	45 00 03.74 73 52 59.71	267 44 49 87 08 00	Mon. 693----- Mon. 695-----	804.34 806.63	Mon. 723-----	44 59 30.75 74 10 53.32	270 56 21 90 41 04	Mon. 722-A----- Mon. 724-----	487.76 949.88
Mon. 695-----	45 00 02.43 73 53 36.49	267 07 34 87 06 45	Mon. 694----- Mon. 695-A-----	806.63 511.62	Mon. 724-----	44 59 31.11 74 11 36.68	270 40 34 90 40 21	Mon. 723----- Mon. 725-----	949.88 944.88
Mon. 695-A-----	45 00 01.60 73 53 59.82	267 06 29 87 07 25	Mon. 695----- Mon. 696-----	511.62 258.73	Mon. 725-----	44 59 31.47 74 12 19.81	270 39 50 90 18 55	Mon. 724----- Mon. 726-----	944.88 1,143.07
Mon. 696-----	45 00 01.17 73 54 11.62	267 07 17 87 07 04	Mon. 695-A----- Mon. 697-----	258.73 803.70	Mon. 726-----	44 59 31.67 74 13 11.99	270 18 18 90 18 04	Mon. 725----- Mon. 726-A-----	1,143.07 669.79
Mon. 697-----	44 59 59.86 73 54 48.26	267 06 38 87 05 36	Mon. 696----- Mon. 698-----	803.70 676.94	Mon. 726-A-----	44 59 31.78 74 13 42.57	270 17 43 90 17 43	Mon. 726----- Mon. 727-----	669.79 480.40
Mon. 698-----	44 59 58.75 73 55 19.13	267 05 14 87 05 42	Mon. 697----- Mon. 699-----	676.94 834.88	Mon. 727-----	44 59 31.86 74 14 04.50	270 17 27 90 16 52	Mon. 726-A----- Mon. 727-A-----	480.40 619.63
Mon. 699-----	44 59 57.38 73 55 57.20	267 05 16 87 05 59	Mon. 698----- Mon. 699-A-----	834.88 570.60	Mon. 727-A-----	44 59 31.96 74 14 32.78	270 16 32 90 19 25	Mon. 727----- Mon. 728-----	619.63 518.65
Mon. 699-A-----	44 59 56.44 73 56 23.22	267 05 41 87 05 33	Mon. 699----- Mon. 700-----	570.60 174.45	Mon. 728-----	44 59 32.06 74 14 56.46	270 19 08 89 52 47	Mon. 727-A----- Mon. 729-----	518.65 1,130.48
Mon. 700-----	44 59 56.16 73 56 31.17	267 05 28 86 49 20	Mon. 699-A----- Mon. 701-----	174.45 839.18	Mon. 729-----	44 59 31.98 74 15 48.06	269 52 10 89 51 08	Mon. 728----- Mon. 730-----	1,130.48 1,125.72
Mon. 701-----	44 59 54.65 73 57 09.43	266 48 54 86 48 50	Mon. 700----- Mon. 702-----	839.18 856.31	Mon. 730-----	44 59 31.88 74 16 39.46	269 50 32 89 50 25	Mon. 729----- Mon. 731-----	1,125.72 1,239.03
Mon. 702-----	44 59 53.10 73 57 48.46	266 48 23 86 59 33	Mon. 701----- Mon. 703-----	856.31 696.50	Mon. 731-----	44 59 31.76 74 17 36.02	269 49 45 89 50 49	Mon. 730----- Mon. 732-----	1,239.03 992.05
Mon. 703-----	44 59 51.92 73 58 20.22	266 59 11 86 59 58	Mon. 702----- Mon. 704-705-----	696.50 430.19	Mon. 732-----	44 59 31.67 74 18 21.30	269 50 17 89 49 38	Mon. 731----- Mon. 735-----	992.05 231.76
Mon. 704-705-----	44 59 51.19 73 58 39.83	266 59 44 86 59 38	Mon. 703----- Mon. 706-----	430.19 1,197.02	Mon. 735-----	44 59 31.65 74 18 31.88	269 49 30 89 48 44	Mon. 732----- Mon. 736-----	231.76 244.63
Mon. 706-----	44 59 49.15 73 59 34.40	266 59 00 87 09 44	Mon. 704-705----- Mon. 706-A-----	1,197.02 981.66	Mon. 736-----	44 59 31.62 74 18 43.05	269 48 36 89 14 49	Mon. 735----- Mon. 737-----	244.63 1,209.33
Mon. 706-A-----	44 59 47.57 74 00 19.17	267 09 12 87 07 44	Mon. 706----- Mon. 707-----	981.66 211.32	Mon. 737-----	44 59 31.11 74 19 38.25	269 14 10 90 44 10	Mon. 736----- Mon. 738-----	1,209.33 764.51
Mon. 707-----	44 59 47.23 74 00 28.80	267 07 37 87 09 26	Mon. 706-A----- Mon. 708-----	211.32 1,214.11	Mon. 738-----	44 59 31.42 74 20 13.15	270 43 45 94 08 44	Mon. 737----- Mon. 739-----	764.51 1,187.82
Mon. 708-----	44 59 45.28 74 01 24.16	267 08 47 87 07 54	Mon. 707----- Mon. 709-----	1,214.11 1,089.55	Mon. 739-----	44 59 34.20 74 21 07.24	274 08 06 93 32 33	Mon. 738----- Mon. 740-----	1,187.82 736.11
Mon. 709-----	44 59 43.51 74 02 13.84	267 07 19 87 07 44	Mon. 708----- Mon. 710-----	1,089.55 713.71	Mon. 740-----	44 59 35.67 74 21 40.78	273 32 09 93 33 25	Mon. 739----- Mon. 741-----	736.11 729.16
Mon. 710-----	44 59 42.35 74 02 46.38	267 07 21 87 15 12	Mon. 709----- Mon. 711-----	713.71 110.63	Mon. 741-----	44 59 37.14 74 22 14.00	273 33 02 93 18 56	Mon. 740----- Mon. 742-----	729.16 818.21
Mon. 711-----	44 59 42.18 74 02 51.43	267 15 09 87 17 04	Mon. 710----- Mon. 712-----	110.63 1,020.15	Mon. 742-----	44 59 38.67 74 22 51.29	273 18 29 93 18 14	Mon. 741----- Mon. 743-----	818.21 804.44
Mon. 712-----	44 59 40.61 74 03 37.95	267 16 32 87 14 55	Mon. 711----- Mon. 713-----	1,020.15 1,011.89	Mon. 743-----	44 59 40.17 74 23 27.95	273 17 48 93 17 57	Mon. 742----- Mon. 744-----	804.44 804.58
Mon. 713-----	44 59 39.03 74 04 24.09	267 14 22 87 14 44	Mon. 712----- Mon. 714-----	1,011.89 1,016.83	Mon. 744-----	44 59 41.66 74 24 04.62	273 17 31 93 17 35	Mon. 743----- Mon. 745-----	804.58 839.47
Mon. 714-----	44 59 37.45 74 05 10.46	267 14 11 86 54 05	Mon. 713----- Mon. 715-----	1,016.83 970.14	Mon. 745-----	44 59 43.22 74 24 42.88	273 17 08 93 24 28	Mon. 744----- Mon. 746-----	839.47 906.66
Mon. 715-----	44 59 35.75 74 05 54.68	266 53 34 86 53 28	Mon. 714----- Mon. 716-----	970.14 970.38	Mon. 746-----	44 59 44.97 74 25 24.20	273 23 59 93 23 35	Mon. 745----- Mon. 747-----	906.66 1,313.15

## BOUNDARY MONUMENTS—HALLS STREAM TO THE ST. LAWRENCE—Continued

Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)	Station	Latitude and longitude	Azimuth	To station	Dis- tance (meters)
	° ' "	° ' "				° ' "	° ' "		
Mon. 747-----	44 59 47.48 74 26 24.05	273 22 53 92 40 06	Mon. 746----- Mon. 748-----	1,313.15 761.18	Mon. 761-----	44 59 56.46 74 34 05.90	271 07 59 91 07 48	Mon. 760----- Mon. 762-----	722.67 616.49
Mon. 748-----	44 59 48.63 74 26 58.76	272 39 42 92 39 30	Mon. 747----- Mon. 749-----	761.18 571.04	Mon. 762-----	44 59 56.86 74 34 34.04	271 07 28 90 38 26	Mon. 761----- Mon. 763-----	616.49 778.95
Mon. 749-----	44 59 49.48 74 27 24.80	272 39 12 91 44 25	Mon. 748----- Mon. 750-----	571.04 704.89	Mon. 763-----	44 59 57.14 74 35 09.60	270 38 00 90 37 44	Mon. 762----- Mon. 764-----	778.95 771.90
Mon. 750-----	44 59 50.18 74 27 56.97	271 44 02 91 29 19	Mon. 749----- Mon. 751-----	704.89 1,110.23	Mon. 764-----	44 59 57.41 74 35 44.84	270 37 19 90 37 22	Mon. 763----- Mon. 765-----	771.90 759.07
Mon. 751-----	44 59 51.11 74 28 47.64	271 28 44 91 29 22	Mon. 750----- Mon. 751-A-----	1,110.23 520.93	Mon. 765-----	44 59 57.67 74 36 19.49	270 36 58 90 28 10	Mon. 764----- Mon. 766-----	759.07 605.58
Mon. 751-A-----	44 59 51.55 74 29 11.42	271 29 06 91 28 43	Mon. 751----- Mon. 752-----	520.93 563.50	Mon. 766-----	44 59 57.83 74 36 47.14	270 27 51 90 26 24	Mon. 765----- Mon. 767-----	605.58 609.39
Mon. 752-----	44 59 52.02 74 29 37.13	271 28 24 91 29 43	Mon. 751-A----- Mon. 753-----	563.50 631.94	Mon. 767-----	44 59 57.98 74 37 14.96	270 26 04 90 26 22	Mon. 766----- Mon. 768-----	609.39 627.87
Mon. 753-----	44 59 52.55 74 30 05.98	271 29 22 91 27 17	Mon. 752----- Mon. 754-----	631.94 527.41	Mon. 768-----	44 59 58.14 74 37 43.63	270 26 02 90 00 50	Mon. 767----- Mon. 769-----	627.87 436.99
Mon. 754-----	44 59 52.98 74 30 30.05	271 27 00 91 32 08	Mon. 753----- Mon. 755-----	527.41 94.12	Mon. 769-----	44 59 58.14 74 38 03.58	270 00 36 90 00 05	Mon. 768----- Mon. 770-----	436.99 244.98
Mon. 755-----	44 59 53.06 74 30 34.34	271 32 05 91 26 33	Mon. 754----- Mon. 756-----	94.12 811.58	Mon. 770-----	44 59 58.14 74 38 14.77	269 59 57 90 00 24	Mon. 769----- Mon. 771-----	244.98 777.33
Mon. 756-----	44 59 53.72 74 31 11.38	271 26 07 91 26 14	Mon. 755----- Mon. 757-----	811.58 827.42	Mon. 771-----	44 59 58.15 74 38 50.26	269 59 58 89 59 32	Mon. 770----- Mon. 772-----	777.33 396.68
Mon. 757-----	44 59 54.39 74 31 49.15	271 25 47 91 24 50	Mon. 756----- Mon. 758-----	827.42 890.89	Mon. 772-----	44 59 58.14 74 39 08.37	269 59 20 90 00 19	Mon. 771----- Mon. 773-----	396.68 548.84
Mon. 758-----	44 59 55.10 74 32 29.81	271 24 22 91 09 06	Mon. 757----- Mon. 759-----	890.89 703.97	Mon. 773-----	44 59 58.14 74 39 33.43	270 00 02 89 57 56	Mon. 772----- Mon. 774-----	548.84 156.06
Mon. 759-----	44 59 55.56 74 33 01.94	271 08 43 91 08 36	Mon. 758----- Mon. 760-----	703.97 678.39	Mon. 774-----	44 59 58.14 74 39 40.55	269 57 50 89 57 50	Mon. 773----- Terminus-----	156.06 32.49
Mon. 760-----	44 59 56.00 74 33 32.91	271 08 14 91 08 23	Mon. 759----- Mon. 761-----	678.39 722.67	Terminus-----	44 59 58.14 74 39 42.04	269 57 50	Mon. 774-----	32.49

We certify that the foregoing is a true description and definition of the international boundary line between the United States and Canada from the source of the St. Croix River to the St. Lawrence River, as reestablished, surveyed, and monumented, and as marked by us on the quadruplicate set of accurate modern maps, which accompany this report, in accordance with Article III of the treaty between the United States and Great Britain, signed at Washington April 11, 1908.



United States Commissioner.

Ottawa, Canada,  
August 15, 1924



His Britannic Majesty's Commissioner.



## CONCLUSION

The boundary from the source of the St. Croix River to the St. Lawrence River, as reestablished and as described in the foregoing report and as shown on the 61 maps accompanying the report, is marked throughout by durable monuments, the geographic positions of which have been determined on the North American datum and fixed for all time.

Experience has shown, however, that the monuments, no matter how carefully constructed, deteriorate in time and that the vista along the line through timbered areas becomes filled with new growth. The commissioners have, therefore, made a joint recommendation to their respective Governments that provision be made for future periodic inspection and repair of the monuments and for reopening the boundary vista so as to maintain the demarcation of the line in its present state of effective-

ness. If this is done an extensive survey of the boundary should never again be necessary.

The commissioners wish to record that throughout the progress of the work of carrying out the provisions of the treaty of 1908 they have had the close cooperation and assistance of the other bureaus and departments of the two Governments. They refer, particularly, to the assistance given by the Geodetic Survey of Canada and by the United States Coast and Geodetic Survey and to the excellent work done by the United States Geological Survey in the printing of the boundary maps. They wish to acknowledge the many courtesies of the customs and immigration officials of both countries which materially facilitated the free movements of the surveyors in the execution of the field work.

Their thanks are due to the Williams-Webb Co., Inc., Washington, D. C., who engraved the boundary maps.

This report would not be complete without recording, also, the commissioners' appreciation of the efficient and conscientious service of those who



Monuments are often damaged by falling trees

have been engaged upon the work both in the field and in the office. They are especially indebted to Mr. James H. Van Wagenen, engineer to the United States section of the commission, and to Mr. J. D. Craig, D. L. S., engineer to the Canadian section of the commission, who have had general charge of the completion of the field work and the preparation of the final report and maps; to the chiefs of field parties and their assistants; to Messrs. R. L. Ross and G. L. Rainboth, D. L. S., of the United States and Canadian sections of the commission, respectively, who have had supervision of the preparation of the boundary maps; and to Mr. R. N. Ashmun, of the United States section, and Mr. J. A. Pounder, D. L. S., of the Canadian section, who have had charge of all the computations.

It is with regret that the commissioners have to record the loss of several members of the commission and staff by death during the course of the work. Mr. G. C. Rainboth, D. L. S., died in 1910; His Britannic Majesty's commissioner, Dr. W. F. King, in 1916; Mr. Thomas Fawcett, D. T. S., in 1920; the United States commissioner, Mr. E. C. Barnard, in 1921; Mr. W. C. Guerin, in 1921; and Mr. G. L. Rainboth, D. L. S., in 1923.

It is most gratifying to record that the reestablishment of the international boundary from the source of the St. Croix River to the St. Lawrence River and the preparation of the maps and the report in accordance with Article III of the treaty of 1908 have been accomplished in a spirit of hearty cooperation and to state that the cordial relations which existed between the former commissioners have been continued by their successors.



Monument on New York-Quebec line, which had been heaved by frost since 1902

E. LESTER JONES,  
*United States Commissioner.*

J. J. McARTHUR,  
*His Britannic Majesty's Commissioner.*



## APPENDIX I

### HISTORICAL SKETCH OF THE GENESIS OF THE INTERNATIONAL BOUNDARY FROM THE SOURCE OF THE ST. CROIX RIVER TO THE ST. LAWRENCE RIVER

Although this portion of the boundary was settled by the treaty signed at Washington August 9, 1842, the explorations and settlements, claims and disputes dating back almost to the earliest discoveries on the continent of America, as well as decisions made previous to 1842 about other parts of the international boundary, influenced the decision reached by the framers of the treaty. This historical sketch is presented in order to show to some extent how and why the several sections of this boundary have been adopted as such.

In 1493, after Columbus returned from his first voyage and reported the existence of islands and a continent far to the west, Pope Alexander VI issued a bull defining a line of separation of the spheres of influence of the Kingdoms of Spain and Portugal. The following year these two countries agreed by treaty upon a different line, somewhere near the present meridian  $60^{\circ}$ . All territories east of this line were to belong to Portugal, while those west of it were to fall within the Spanish sphere. This partition was not recognized, however, by England or France and soon disappeared.

In 1497 John Cabot, under a patent from the King of England, set sail for the west and landed on Cape Breton Island; on the return journey he explored the south coast of Newfoundland. The following year he again crossed the Atlantic and resumed his explorations, and took possession in the name of the King of England of all the coast as far south as latitude  $36^{\circ}$ , thus establishing a claim on the ground of first discovery.

In 1524 a French expedition under Verrazano, sailing in search of a legendary passage to India, explored the coast from latitude  $34^{\circ}$  north to Newfoundland. The King of France, still bent upon the discovery of the "Strait of Anian," reported by Marco Polo, sent out Jacques Cartier, who explored the Gulf of St. Lawrence in 1534, and who, during the following year, ascended the river of that name.

In 1583, by which time any titles or claims of Spain and Portugal had disappeared, the English took formal possession of Newfoundland and the coast as far south as Cabot's discoveries had extended. King James I granted to the London Company in 1606 the right to form settlements 100 miles square in the territory between parallels  $34^{\circ}$  and  $41^{\circ}$ , and to the Plymouth Company the right to form similar settlements in the territory between parallel  $38^{\circ}$  and parallel  $45^{\circ}$ . This last-named parallel forms part of our boundary of the present day.

In the meantime, France also claimed territory about the St. Lawrence, basing her claim on Cartier's voyages of 1534 and 1535; and Henry IV of France gave a charter to De Monts in 1603 for the seacoast and territory of America lying between parallels  $40^{\circ}$  and  $46^{\circ}$ , under the name "Acadia." It will be noted that



the territory granted in 1606 by the charter of the Plymouth Company overlapped this area which had been granted by France three years before, and it was not long before trouble arose between the two countries.

De Monts, who had Champlain with him as geographer, sailed for Acadia in 1604. He built a fort on an island near the mouth of the St. Croix River, later abandoning it in favor of Port Royal, or Annapolis, as it is now called. Port Royal was captured and destroyed by the English in 1613, although they did not formally lay claim to Acadia, which, at that time, included the present Provinces of Nova Scotia and New Brunswick and a part of the State of Maine.

However, King James I of England in 1620 gave a charter to the Council for New England, granting them territory from parallel 40° to parallel 48°, and this grant was not only for the coast region but for the interior of the continent to the Pacific Ocean.

The following year, 1621, a grant was made which has had a great effect on the international boundary as it exists to-day. This was a grant of Nova Scotia given by King James to Sir William Alexander. The part of his charter which describes this grant reads as follows:<sup>1</sup>

“ \* \* \* do give, grant and convey to the aforesaid Sir William Alexander, his heirs or assigns, hereditarily, all and single, the lands of the Continent and islands situated and lying in America, within the head or promontory commonly called Cape of Sable, lying near the forty-third degree of north latitude or thereabouts; from this Cape, stretching along the shores of the sea, westward to the roadstead of St. Mary, commonly called St. Mary's Bay, and thence northward by a straight line, crossing the entrance, or mouth, of that great roadstead which runs towards the eastern part of the land between the countries of the Suriqui and Etchimine, commonly called Suriquois and Etchimines, to the river generally known by the name St. Croix, and to the remotest springs, or source, from the western side of the same, which empty into the first mentioned river; thence by an imaginary straight line, which is conceived to extend through the land, or run northward to the nearest bay, river, or stream emptying into the great river of Canada; and going from that eastward along the low shores of the same river of Canada to the river, harbor, port, or shore, commonly known and called by the name Gathepe or Gaspie, and thence south-southeast to the isles called Bacalaos or Cape Breton, leaving the said isles on the right, and the mouth of the said great river of Canada, or large bay, and the territory of Newfoundland, with the islands belonging to the same lands on the left; thence to the headland, or point of Cape Breton aforesaid, lying near latitude forty-five degrees or thereabouts; and from the said point of Cape Breton toward the south and west to the above mentioned Cape Sable, where the boundary began; including and containing within the said coasts and their circumference, from sea to sea, all lands of the continent with the rivers, falls, bays, shores, islands, or seas, lying near or within six leagues on any side of the same on the west, north or east sides of the same coasts and bounds and on the south-southeast (where Cape Breton lies) and on the south side of the same (where Cape Sable is) all seas and islands southward within forty leagues of said seashore, thereby including the large island commonly called Isle de Sable or Sablon, lying towards Carban, in common speech south-southeast about thirty leagues from the said Cape Breton seaward and being in latitude forty-four degrees or thereabouts \* \* \*

“ \* \* \* And if any questions or doubts shall arise on the meaning and construction of any clause in our present charter, all these shall be taken and explained in their amplest form and in favor of the said Sir William Alexander and his aforesaid.”

On the best map of the time, Champlain's map of 1612, two features are very prominently marked: the St. Croix River flowing into the “Baye Francoise” or Bay of Fundy; and a large unnamed river (which does not exist), north of the St. Croix, flowing into the St. Lawrence River. As the heads of these two rivers, as shown on the map, are very close to each other, it was probably considered that

<sup>1</sup> Sir John Bourinot. “Builders of Nova Scotia.”

they, being natural features easily identified, would make a better boundary for the grant to Alexander than an artificial line, the location of which was unknown.

This grant encroached on territory previously granted to the Council for New England and, also, included the south shore of the St. Lawrence River, which was of course claimed by France. The council, however, waived its right to lands covered by the grant and, also, in 1628 gave a grant to the governor and company of Massachusetts Bay.

War which broke out between England and France in 1627 resulted in the capture by the English of Quebec and Port Royal, which latter place the French had reoccupied after its destruction by the English in 1613.

The convention of Susa, agreed to in 1629, provided that France was to regain her American possessions, and this agreement was formally ratified by the treaty of St. Germain in 1632, by which England agreed to restore to France all the places occupied by her in New France, Acadia, and Canada. France assumed that under the convention all Acadia would be hers, and acting on this assumption gave grants of land therein and proceeded to take possession of the forts and trading posts.

Some time later, in 1638, in consequence of a dispute between La Tour and Charnisay, two lieutenants of France, regarding their respective territories, the King of France granted to the latter as his territory the present Province of New Brunswick and part of the present State of Maine, described as the coast of the Etchimens; and to the former the present Province of Nova Scotia, designated as Acadia. Thus territory under the name Acadia was confined to the peninsula, instead of to the entire territory as formerly. Ten years later, Charnisay was made governor of Acadia by letters patent, and in these documents Acadia is described as extending from the shore of the St. Lawrence River to Virginia.

The contradiction between the descriptions of Acadia in these two cases shows how a name was sometimes applied to one tract of country and sometimes to a quite different one; and thus boundary disputes easily arose over the interpretation of treaties in which such names occurred.

Some French documents of a few years later refer to Acadia as including the mainland to the Penobscot River, as well as the peninsula. In the documents describing a grant made by Sir William Alexander in 1630 within his own territories, Acadia is referred to as if it formed only a part of the peninsula.

It has already been noted that after the convention of Susa, France occupied the forts and trading posts of Acadia and evidently considered the entire country to have been restored to her by the treaty of St. Germain. Nevertheless King Charles of England directed Alexander to continue with his scheme of colonization, claiming that he had never meant to relinquish the entire country. The Council for New England, therefore, gave patent in 1635 to Lord William Alexander, to whose father Nova Scotia had been granted, for lands to be known as the County of Canada, extending along the coast from the Pemaquid River to the St. Croix River, and north to the St. Lawrence River. This territory and an addition to it were transferred to the father on the death of his son.

In 1654 an English expedition under orders from Cromwell seized all the French posts between the Penobscot River and Canso. The next year the treaty of West-



minster provided that commissioners should be appointed to decide which country should retain the three forts, Penobscot, St. John, and Port Royal, but whether these commissioners ever made any report is uncertain. At any rate, Cromwell, in 1656, assumed England to be entitled to all Acadia and, ignoring any rights of Alexander, gave to Temple, Crowne, and La Tour a grant comprising rather more than Alexander's Nova Scotia and County of Canada together.

In the document conferring this grant, Acadia is referred to as a part only of the peninsula, and is differentiated from Nova Scotia; and this document was later made use of by the French in the English-French boundary disputes.

In 1663, King Charles II of England, ignoring any rights of France to the territory in question under the treaty of St. Germain, or of Temple, Crowne, and La Tour under the grant from Cromwell, gave a grant to his brother, the Duke of York, comprising practically the same territory as Alexander's County of Canada. This grant later became known as the territory of Sagadahock.

While England thus laid claim to part of the south bank of the St. Lawrence River, as being included in her territories known as Acadia, Nova Scotia, or County of Canada, France was in actual possession and seems to have regarded it as part of New France and not of Acadia, even when her title to the latter was undisputed. Commissions to governors of Quebec of that period place under their jurisdiction the south bank of the St. Lawrence to a depth of 10 leagues.

War broke out again between England and France, and the treaty of Breda in 1667, which brought the dispute to a close, provided that Acadia should be restored to France. The next year, King Charles ceded all Acadia to the King of France, and in particular the forts of Penobscot, St. John, Port Royal, La Havre, and Cape Sable. He also sent orders to Temple, who had bought out the rights of Crowne and La Tour, to surrender Acadia, including these forts to the French; and, after some delay and objection, this was done. In spite of this transfer of Acadia, which included territory to the Penobscot River, King Charles, in 1674, confirmed the grant of Sagadahock to the Duke of York.

In the meantime, the French gave seigniorial grants, some of which were in the present State of Maine, and most of these grants were described as being in Acadia.

A treaty of neutrality in 1686, between England and France, confirmed the right of each country to places in America which were then in their actual possession. While this treaty would seem to confirm the title of France to territory as far as the Penobscot River, England later maintained that it wiped out earlier rights, replacing them by one based on occupation.

Notwithstanding these treaties, England continued to claim Sagadahock, and trouble arising in consequence of the attempts of the English to occupy it, they seized Port Royal again in 1690. The next year a new charter was granted to Massachusetts, in which Nova Scotia, or Acadia, and Sagadahock were annexed to that Province.

The war was brought to a close in 1697 by the treaty of Ryswick. By this treaty, all the possessions which the French held before the war were to be restored to them, and commissioners were to be appointed to decide on the boundary.



Massachusetts claimed Sagadahock under her recent charter; the French claimed that Acadia extended to the Kennebec River; and the commissioners were apparently going to make the St. Georges River, between the Kennebec and the Penobscot, the boundary; but before anything was definitely settled, war broke out again in 1702. It was brought to a close in 1713 by the treaty of Utrecht, by which Acadia was ceded to England.

Part of the treaty which describes the territory to be transferred reads:

“\* \* \* Nova Scotia, otherwise called Acadia, in its entirety, conformably to its ancient limits as also the town of Port Royal now called Annapolis Royal and generally of all depending upon the said lands and islands of this country, \* \* \*

This treaty only paved the way for a series of boundary disputes.

The French, previous to the treaty of Utrecht, had claimed that Acadia extended to the Kennebec River, or at least to the Penobscot, but now they claimed that the Acadia of the treaty was limited to a part of the peninsula, and continued to occupy the mainland. No real efforts appear to have been made to settle the question until 1748, when the treaty of Aix-la-Chapelle provided that commissioners should be appointed to determine the boundaries of Acadia.

The English commissioners claimed that the Nova Scotia, or Acadia, of the treaty of Utrecht was the Acadia of the period immediately preceding, and that it included the mainland to the Kennebec River, and they were able to cite many French documents, grants, and charters in support of this claim. They also pointed out that in the treaty of Utrecht the words “Nova Scotia” and “Acadia” were names used to refer to the same territory, and that the French previous to and during the preliminary negotiations preceding the treaty considered Acadia as including the mainland as far as the Kennebec; and they contended that this should decide what was meant by the name “Acadia” or “Nova Scotia” in the treaty.

They also contended that the territory called Acadia or Nova Scotia extended to the St. Lawrence River, citing in support the grant of Nova Scotia to Alexander and the subsequent extension of his territory to the Kennebec River.

The French commissioners took advantage of the words “Acadia within its ancient limits,” mentioned in the treaty, and maintained that the territory lately called “Acadia” by them or by the English was not the Acadia of the treaty; that the Acadia of the treaty was an ancient Acadia which included only a part of the peninsula. They pointed out that a part of the peninsula had been called Acadia from the earliest times, but that the remainder of the territory claimed by England as Acadia had in those times been called by many names, New France, Canada, Norumbegue, Etchimins, Baye Francoise, Acadia, Grand Baye of St. Lawrence, and Gaspesie, and quoted several documents to show that New France and Acadia were distinct places.

With regard to the English contention that in the treaty of Utrecht, “Nova Scotia” and “Acadia” were synonymous, the French commissioners maintained that what the English had in the past called “Nova Scotia” was a matter of indifference to them, as France had never had a colony called “Nova Scotia” and could not cede what she never had; and that, as the territory always had legally belonged to France, previous to the treaty of Utrecht, the name Nova Scotia was

of no real significance, but was invented by the English to sustain claims to the country.

They also stated that the English commissioners "confound, throughout their memoir, the ideal Nova Scotia of 1621 with the Nova Scotia of the treaty of Utrecht, and both of them with Acadia without distinction of ancient limits in order to extend thereby their pretensions to everything, in whatsoever period, which can be designated by the name of Nova Scotia or Acadia."

They quoted many documents to prove that the south bank of the St. Lawrence River had always been part of Canada, and not of Acadia, and that the governors of Canada had always exercised jurisdiction over it.

The commissioners, after debating the questions for over four years, were unable to agree on any boundary, though it is probable that England was willing to abandon her claim to the south bank of the St. Lawrence. Nothing was done, however. War broke out again, and the dispute was finally settled by the treaty of Paris in 1763, by which Canada and Acadia were ceded to England.

In the meantime, in 1719, Nova Scotia had been created a separate Province; and while France and England were disputing as to whether the mainland had been ceded to England by the treaty of Utrecht, Nova Scotia and Massachusetts had a boundary dispute of their own over the division between them of this same territory, and this latter dispute had its effect on the boundary claims of later times.

Massachusetts continued to claim Sagadahock, annexed to her in 1691, but Nova Scotia maintained that her territories included all the old Acadia and, therefore, to the St. Georges River. The commissions to the governors of Nova Scotia between 1719 and 1763 do not give any boundaries for the province, but simply call it Nova Scotia, or Acadia.

The Nova Scotia authorities went so far as to have land surveys made west of the St. Croix River and continued to claim this territory until 1762, when Massachusetts proposed that they should come to an agreement about the boundary. However, Nova Scotia considered that such a question should be settled by the Crown. The governors of the two provinces then agreed to make no further grants of land in the disputed territory until the boundary was fixed, which was not done until after the treaty of Paris.

Article IV of the treaty of Paris of 1763, by which France gave up all claim to Canada and Acadia, reads as follows:

"His Most Christian Majesty renounces all pretensions which he has heretofore formed, or might form, to Nova Scotia or Acadia, in all its parts, and guarantees the whole of it, and with all its dependencies, to the King of Great Britain: moreover his Most Christian Majesty cedes and guarantees to His said Britannic Majesty, in full right, Canada, with all its dependencies, as well as the island of Cape Breton, and all the other islands and coasts in the Gulf and River St. Lawrence and in general, everything that depends on the said countries, lands, islands and coasts, with the sovereignty, property, possession and all rights acquired by treaty or otherwise which the said Most Christian King and the Crown of France have had till now over the said countries, lands, islands, places, coasts, and their inhabitants, so that the most Christian King cedes and makes over the whole to the said King and to the Crown of Great Britain, and that in the most ample manner and form, without restriction and without any liberty to depart from the said cession and guaranty under any pretence, or to disturb Great Britain in the possessions above mentioned \* \* \*"

Now that France was no longer in possession of Canada, England, although she had in her boundary disputes with France maintained that the Provinces of Massachusetts and Nova Scotia extended to the St. Lawrence, was no longer desirous that they should do so. In 1763 a royal proclamation creating the new Province of Quebec included all the south bank of the St. Lawrence in that province.

In the royal proclamation, the southern boundary of the new province is described as follows:

“ \* \* \* from whence the said line crossing the river St. Lawrence and the Lake Champlain, in 45° of North Latitude, passes along the Highlands which divide the rivers that empty themselves into the said river St. Lawrence from those which fall into the sea; and also along the north coast of the Baye des Chaleurs \* \* \* ”

A portion of this boundary was soon afterwards determined, and has remained the boundary until the present day.

After some correspondence between the governors of the provinces of New York and Quebec it was decided that a determination of the forty-fifth parallel, where it intersects Lake Champlain, should be made. Observations for latitude were made in 1766 at several places on the shores of Lake Champlain near Windmill Point, and a point was agreed upon as being on the forty-fifth parallel.

It was subsequently agreed that the line should extend eastward as far as the Connecticut River, and in the years 1771 to 1774 the line was surveyed from the St. Lawrence River to the Connecticut River by John Collins, for Quebec, and Thomas Valentine, for New York.

The southern boundary of Quebec became the northern boundary of Massachusetts and Nova Scotia. The commission to Montague Wilmot in 1763, as governor of Nova Scotia, reads in part:

“ To the northward our said province shall be bounded by the southern boundary of our Province of Quebec, as far as the western extremity of the Baye des Chaleurs, to the eastward by the said Bay and the gulf of St. Lawrence to the Cape or Promontory called Cape Breton in the Island of that name including that Island, the Island of St. John's, and all other Islands within six leagues of the coast, to the southward by the Atlantic Ocean from the said Cape to Cape Sable including all other islands within forty leagues of the coast, with all the rights, members and appurtenances whatever thereunto belonging and to the westward, although our said province hath anciently extended and doth of right extend as far as the River Pentagoet or Penobscot, it shall be bounded by a line drawn from Cape Sable across the entrance of the Bay of Fundy to the mouth of the river St. Croix, by the said river to its source and by a line drawn due north from thence to the southern boundary of our Colony of Quebec.”

In 1764 Massachusetts was offered the territory up to the St. Croix River and a line drawn due north from its source, if she would waive her claim to any portion of the south bank of the St. Lawrence River, which the Crown, as had been shown in the royal proclamation, wished to include in the new Province of Quebec.

Apparently Massachusetts agreed informally to this, for the right of Quebec to the south bank of the St. Lawrence River was not disputed, nor was that of Massachusetts to the territory up to the St. Croix River; and all commissions to governors of Nova Scotia, subsequent to 1763, made the St. Croix River and a north line from its source the western boundary, without mentioning that that province of right extended to the Penobscot River.



The Quebec act of 1774 described the southern boundary of the province in terms almost identical with those of the royal proclamation. It reads in part as follows:

"That all the territories, Islands and Countries in North America, belonging to the Crown of Great Britain, bounded on the south by a line from the Bay of Chaleurs, along the Highlands, which divide the Rivers that empty themselves into the River St. Lawrence from those which fall into the sea, to a point in forty-five degrees of northern latitude, on the eastern bank of the River Connecticut, keeping the same latitude directly west through the Lake Champlain, until in the same latitude it meets the River St. Lawrence, from thence up the eastern bank of the said river to the Lake Ontario."

In the descriptions of the southern boundary of Quebec in this act and in the royal proclamation is seen reappearing the northern boundary, parallel  $45^{\circ}$ , of the old grant to the Plymouth Company. The descriptions are somewhat indefinite in that they do not define just where the Highlands are; they also leave one undefined gap between the Highlands and the part of the boundary formed by the forty-fifth parallel, in one case, and the Connecticut River, in the other, and another undefined gap between the Highlands and Chaleur Bay; and they neglect altogether the fact that the Restigouche River flows into neither the St. Lawrence River nor the sea, but into Chaleur Bay, and fail to state whether the Highlands just east of that bay are to be found north or south of the Restigouche.

Some of the maps of the time show the southern boundary of Quebec along the sources of the tributaries of the St. Lawrence River as far as the head of the Restigouche, and thence along that river to the head of Chaleur Bay. On others, the boundary passes around the northern source of the Restigouche and follows a land line to the head of Chaleur Bay.

Most of these maps also show that a line drawn due north from the source of the St. Croix would reach a watershed separating rivers flowing into the River St. Lawrence from those flowing into the Atlantic Ocean, or rather into the Bay of Fundy, while modern maps show that that line does not reach such a St. Lawrence-Atlantic watershed on account of the intervention of the Restigouche River.

While, as we have seen, the St. Croix River was decided upon as the boundary between Massachusetts and Nova Scotia, its location was left undetermined. In 1764, Governor Bernard, of Massachusetts, sent two surveyors, Mitchel and Jones, to survey Passamaquoddy Bay, and to determine and survey the St. Croix River and a pond at its head.

Mitchel identified the Magaguadavic as the St. Croix, on the sworn testimony of three Indians of the locality to that effect. He made a survey of this river to Second Falls and also of Lake Utopia and of Passamaquoddy Bay. A copy of the map made by Mitchel as a result of this survey, annotated by Governor Bernard, as well as some correspondence of the latter with Governor Wilmot, show that Bernard did not accept Mitchel's idea based on the testimony of the Indians that the river they pointed out, the present Magaguadavic, was the St. Croix.

Testimony taken some years later seems to show that both the present Magaguadavic and St. Croix, and even the Cobscook, were known prior to that time to some of the inhabitants of the district as the St. Croix. Bernard at the time decided that the present Digdeguash was the St. Croix, calling the present St. Croix the

Passamaquoddy and identifying it with a river called Riviere des Etchemins by Champlain. As aforesaid, he communicated his views on the subject to Governor Wilmot, of Nova Scotia.

In 1765 Governor Wilmot sent the surveyor general of Nova Scotia, Charles Morris, to survey Passamaquoddy Bay. On the strength of the testimony of Indians and by a comparison of his surveys with Champlain's description of the St. Croix, which had been furnished by Governor Bernard, Morris decided that the Cobscook was the only river that could be the St. Croix. However, no actual decision as to what river was the St. Croix was made by responsible authorities previous to the Revolutionary War.

The War of the American Revolution was brought to a close by a treaty signed at Paris in 1783. Part of Article II of this treaty is as follows:

"And that all disputes which might arise in future, on the subject of the boundaries of the said United States may be prevented, it is hereby agreed and declared, that the following are and shall be their boundaries, viz: From the northwest angle of Nova Scotia, viz: that angle which is formed by a line drawn due north from the source of the Saint Croix River to the Highlands; along the said Highlands which divide those rivers that empty themselves into the river St. Lawrence from those which fall into the Atlantic Ocean, to the northwesternmost head of Connecticut River; thence down along the middle of that river, to the forty-fifth degree of north latitude; from thence, by a line due west on said latitude until it strikes the river Iroquois or Cataraquy; \* \* \* East by a line to be drawn along the middle of the river St. Croix from its mouth in the Bay of Fundy to its source, and from its source directly north to the aforesaid Highlands, which divide the rivers that fall into the Atlantic Ocean from those which fall into the river St. Lawrence; comprehending all islands within twenty leagues of any part of the shores of the United States, and lying between lines to be drawn due east from the points where the aforesaid boundaries between Nova Scotia on the one part and East Florida on the other, shall respectively touch the Bay of Fundy and the Atlantic Ocean; excepting such islands as now are, or heretofore have been, within the limits of the said province of Nova Scotia."

With regard to the portion of the boundary at present under discussion, the United States negotiators of the treaty, under instructions from their Government, tried to secure the St. John River from mouth to source as a boundary, but to this the English negotiators would not agree. The English, on their part, attempted to secure as boundary, first the Piscatqua River, then the Kennebec, and then the Penobscot, but the American negotiators would not agree to any of those rivers as the boundary.

Finally all agreed that the former boundary between Massachusetts and Nova Scotia, the St. Croix River, should continue to be the new boundary. This was held to be in agreement with the old boundary of Sir William Alexander's Nova Scotia of 1621 and with the boundary of Massachusetts Bay under the charter of 1691.

It will be noted that the wording of the description of this portion of the boundary agrees closely with the wording of the description of the western boundary of the Province of Nova Scotia as given in the commission to Wilmot in 1763 and subsequent commissions, and with the wording of the descriptions of the southern boundary of the Province of Quebec as given in the royal proclamation of 1763 and in the Quebec act of 1774.

In spite of the hope of the negotiators of the treaty of 1783, that future boundary disputes might be avoided, and the care taken in describing the boundaries to that end, disputes did arise because the location of the boundary as defined by the treaty was unknown and undetermined. Also, it was not realized at that time that

the topography of the country was not then known with sufficient accuracy to insure that when an attempt should be made to trace out the boundary as defined by the treaty, it would fit the topography.

With regard to the portion of the boundary between the Atlantic coast and the St. Lawrence River, the treaty failed to define or make clear:

1. What islands were formerly within the limits of Nova Scotia.
2. What river was the River St. Croix.
3. Where was the location (even on a map) of the northwest angle of Nova Scotia.
4. Where was the location of the Highlands between the northwest angle of Nova Scotia and the northwesternmost head of the Connecticut River.
5. What stream was to be regarded as the northwesternmost head of the Connecticut River.
6. Whether the determination of the forty-fifth parallel, made by Valentine and Collins for the Provinces of New York and Quebec, was to be accepted as the boundary, or whether a new determination was to be made.

A dispute about what river was the St. Croix arose very soon after the treaty of 1783, for royalist refugees settled near St. Andrews, and the State of Massachusetts claimed that they were on United States territory.

The Nova Scotia authorities maintained that the present St. Croix, known locally at that time as the Scoodic, was the St. Croix of the treaty and of earlier periods; they had apparently abandoned the opinion held a few years before that the Cobscook was Champlain's St. Croix.

Massachusetts, in 1784, appointed a committee to investigate the question. This committee visited Passamaquoddy Bay and made inquiries in that district; they also secured the evidence of John Jay, one of the negotiators of the treaty of 1783, and of Mitchel, who had formerly, as we have seen, identified the Magaguadavic with the St. Croix. As a result of this investigation, the committee made a report in which it was admitted that Mitchell's map of 1755 used by the negotiators of the treaty was somewhat inaccurate, yet they claimed on the evidence they had obtained that the Magaguadavic was the St. Croix of the treaty of 1783.

The Governor of Massachusetts wrote to the Governor of Nova Scotia informing him of the report of this committee, and suggested that he recall those British subjects who had settled west of the Magaguadavic.

The Province of New Brunswick had been created in 1784, and this letter was forwarded to its governor. In his reply to the Governor of Massachusetts he claimed that the Scoodic was the St. Croix of the treaty of 1783; which opinion, he had been informed, would be maintained by the Government of Great Britain.

Other suggestions and proposals with regard to this question were made in the next few years, but nothing definite was done until 1794, when, after lengthy negotiations, a treaty commonly known as Jay's treaty was signed, providing for a commission to determine the St. Croix River.

The treaty reads in part as follows:

"Whereas doubts have arisen what river was truly intended under the name of the River St. Croix, mentioned in the said treaty of peace, and forming a part of the boundary therein



described; that question shall be referred to the final decision of commissioners to be appointed in the following manner, viz: \* \* \* The said commissioners shall, by a declaration, under their hands and seals, decide what river is the river St. Croix intended by the treaty. The said declaration shall contain a description of the said river, and shall particularize the latitude and longitude of its mouth and of its source \* \* \* And both parties agree to consider such decision as final and conclusive, so that the same shall never hereafter be called into question, or made the subject of dispute or difference between them."

The United States commissioner was David Howell, of Rhode Island; the British commissioner, Thomas Barclay, of Annapolis. Each Government was represented by an agent; the United States by James Sullivan, of Massachusetts, and Great Britain by Ward Chipman, solicitor general of New Brunswick. The first meeting of the commission took place at Halifax in 1796, when the agents were advised to have surveys made of the rivers claimed by them to be the St. Croix. Also, at this meeting the two commissioners agreed upon a third commissioner, Egbert Benson, of New York.

The full commission met shortly afterwards in St. Andrews, when the agents filed their claims for their respective Governments, Sullivan claiming the Magaguadavic as the St. Croix—Chipman, the Scoodic. The commissioners visited both rivers, and the respective agents attempted to identify the Isle St. Croix described by Champlain. The testimony of Indians and white settlers as to what river had been known as the St. Croix was also secured. The commission then adjourned until the surveys could be completed.

They met again at Boston in 1797, when the agents presented their respective arguments. Sullivan, the United States agent, claimed that the decision as to what river was the St. Croix of the treaty should not of necessity depend upon the identification of a river with the historic St. Croix. He maintained that the Nova Scotia of 1783, owned by England and mentioned in the treaty, had no connection with the Nova Scotia granted to Alexander in 1621, since all territory east of Massachusetts had been granted to Massachusetts Bay in 1691, and that that territory was first limited by the treaty of 1783. As a deduction from this, he claimed that the St. Croix of the treaty was not the St. Croix described by Champlain, but a new St. Croix brought into existence by the treaty.

He stated that inasmuch as the negotiators of the treaty had made use of Mitchell's map of 1755, the river to be identified was the St. Croix River of that map, which was shown thereon as being the easternmost of those rivers flowing into Passamaquoddy Bay. He claimed that when the United States negotiators of the treaty of 1783 abandoned their claim to the St. John River as the boundary they insisted upon the St. Croix River, the first river shown on Mitchell's map west of the St. John, and that that river, the St. Croix of Mitchell's map, was the river to be determined, and he maintained that this was the Magaguadavic.

Chipman, the British agent, maintained on his part that the St. Croix of the treaty of 1783 was the historic St. Croix described by Champlain and mentioned as the boundary of Nova Scotia in the charter granting that Province to Sir William Alexander in 1621. He, of course, identified the Scoodic as the St. Croix.

Subsequent to the hearing of these arguments the commission obtained the evidence of John Jay and John Adams, two of the negotiators of the treaty of 1783. They testified that the St. Croix, which the negotiators of the treaty intended to

make the boundary, was the St. Croix which was the former boundary of Massachusetts Bay. They stated that this was supposed to be the St. Croix marked on Mitchell's map, but that no attention had been paid to the fact that the map might be inaccurate.

In the meantime a copy of the edition of 1613 of Champlain's Voyages had been obtained from Europe, permitting the commission to have a fuller description of the St. Croix River and Isle St. Croix according to Champlain than they had had hitherto.

Chipman, the British agent, had excavations made on Bone, or Dochet, Island, a short distance up the Scoodic from its mouth, and remains of an ancient settlement were found. This island was also surveyed, and a map of it was found to correspond closely with Champlain's descriptions of Isle St. Croix. Chipman claimed that this and the relics found upon the island identified it as Isle St. Croix and that, therefore, the Scoodic was the St. Croix River.

As the surveys were still unfinished, the commission adjourned until June, 1798, when they again adjourned for the same reason until September of that year.

They then heard anew the arguments of the agents and gave their decision. This was to the effect that the river intended under the name of the River St. Croix in the treaty of peace of 1783, forming a part of the boundary therein described, had its mouth in Passamaquoddy Bay at Joes Point, in north latitude  $45^{\circ} 05' 05''$  and in longitude  $67^{\circ} 12' 30''$  west.

They decided that the boundary should follow the northern or Chiputneticook Branch to its source, which point was marked by the commission's surveyors.

A map of the river had been compiled from surveys made by order of the commission and various earlier surveys, and a copy, upon which the river was shown, was annexed to the report.

Although the commissioners did not submit any report showing their reasons for their decisions on various points, these are known from other sources, such as correspondence and a report made by Commissioner Benson to the President of the United States.

The commissioners rejected the claim that the river intended by the treaty of 1783 to be the St. Croix must be the St. Croix of Mitchell's map, and decided that it was the historic St. Croix described by Champlain, the boundary of Alexander's grant of 1621 and of Massachusetts Bay in 1691. They decided that Dochet or Bone Island was the only island which agreed with Champlain's maps and descriptions of Isle St. Croix; that the finding of the relics verified this, and that, therefore, the Scoodic River, in which Dochet Island is, was the St. Croix.

In spite of the wishes of the United States agent that the mouth of the river should be fixed among the islands of Passamaquoddy Bay, the commissioners held that that bay was part of the Bay of Fundy and that to define the boundary among its islands exceeded their authority. For that reason, and in agreement with Champlain, they fixed the mouth of the river at Joes Point. On some other points they were not all in agreement, and their final verdict was, in part at any rate, in the nature of a compromise.

After the commissioners had decided that the St. Croix of the treaty of 1783 was the St. Croix of Champlain and of Alexander's grant, the British agent claimed that the words in Alexander's charter, "to the remotest springs or source from the western side of the same which empty into the first mentioned river," would indicate the most western source of the Scoodic branch. The United States agent claimed that they meant the most remote spring entering from the western side, or the most western source of the Chiputneticook.

The British agent claimed that a due north line from that point would not reach such highlands as are described in the treaty, while one from the source of the western branch of the Scoodic would, but on this point he was in error, as a modern map will show. The United States agent claimed that this point was irrelevant, and his contention was sustained by the commission.

The British commissioner, Barclay, gave the opinion that the western branch to its extreme source should be the boundary in accordance with the treaty. Benson concurred in this, but not to the extreme source; only to the outlet of the lake from which it flowed. Howell, the United States commissioner, thought that the Chiputneticook branch should be chosen and that the principle suggested by Benson should be applied to it.

Barclay and Benson finally agreed to the outlet of the easternmost of the Scoodic Lakes as the source of the St. Croix, with Howell dissenting. A line north from this point would have inclosed in New Brunswick some United States grants lying between the two branches and would have inclosed in the United States the Grand Falls of the St. John River and a British military post at Presque Isle. The United States agent proposed, and the British agent, with the consent of the British Ambassador, Mr. Liston, agreed, that the extreme source of the Chiputneticook should instead be chosen, whereupon this alteration was agreed to by all the commissioners and their decision accordingly rendered.

Referring to the part of Article II of the treaty of 1783, quoted on page 295, it seems probable that the intention of the negotiators of the treaty of 1783 was to make the new boundary between the territory of the United States and of Nova Scotia the same as the former boundary between the former Colony of Massachusetts Bay and Province of Nova Scotia. This is borne out by the testimony and correspondence of the negotiators of both countries and also by the instructions from Congress to the United States negotiators, who were told to try to secure the St. John River from mouth to source as boundary, and if they could not obtain that, to insist on the old boundary between Massachusetts Bay and Nova Scotia becoming the new boundary, and to allow no portion of the original 13 States to be left in the possession of Great Britain.

It should be noted that the wording of the treaty of 1783 closely follows the wording of the royal proclamation of 1763 creating the Province of Quebec, of the Quebec act of 1774, and of the commission to Governor Wilmot, of Nova Scotia, in 1763, all of which have already been quoted.

As has been previously stated, most of the maps of the period 1763 to 1782 show the southern boundary of the Province of Quebec as running along the southern edge of the St. Lawrence River watershed and finally reaching Chaleur Bay. These



maps show the northern boundaries of the Provinces of Massachusetts Bay and Nova Scotia coincident with the southern boundary of Quebec.

In 1784 the Province of New Brunswick was created, and in the commission to its first governor, Thomas Carleton, its western and northern boundaries are thus described:

"Our Province of New Brunswick, bounded on the Westward by the Mouth of the River St. Croix, by the said River to its source and by a line drawn due north from thence to the Southern Boundary of our Province of Quebec, to the Northward, by the said Boundary as far as the Western Extremity of the Bay des Chaleurs."

The attention of British officials was first drawn to the question of the location of the international boundary about 1785 on account of an interprovincial boundary dispute between the Provinces of Quebec and New Brunswick, for, as already pointed out, the southern boundary of Quebec constituted the northern boundary of both New Brunswick and Massachusetts. Even previous to this, in 1783, General Haldimand, at Quebec, wrote Governor Parr, at Halifax, regarding a proposed settlement of Acadians in Quebec in which he stated that he planned to grant them lands near Grand Falls on the St. John River, evidently believing that the boundary between Quebec and what was then Nova Scotia lay south of Grand Falls.

In 1785 the authorities of New Brunswick disputed a claim on the part of Quebec to the district about Lake Temiscouata and the Madawaska River. New Brunswick, in 1787, assumed jurisdiction over the Madawaska district without the boundary dispute having been settled, but Quebec continued to exercise occasional authority there.

Lord Dorchester, governor of Quebec, wrote to the governor of New Brunswick in 1787, claiming that the boundary between Quebec and New Brunswick and New England was a range of hills near Grand Falls on the St. John River. Somewhat later he suggested that the surveyors general of the two Provinces should meet and settle the question of the interprovincial boundary.

At this meeting the surveyor general of New Brunswick maintained that the southern boundary of Quebec was north of Lake Temiscouata, while the surveyor general of Quebec claimed that it was south of Grand Falls; but no agreement was reached.

Lord Dorchester wrote again to the governor of New Brunswick about this question, urging the acceptance of an interprovincial boundary extending from the head of Chaleur Bay to the Great Falls of the River St. John, on account of the effect this would have on deciding the location of the international boundary.

He claimed that the words of the Quebec act in describing the southern boundary of that Province should be interpreted as the highest range of hills running westward from Chaleur Bay; that rivers might run through this range in opposite directions, some to the St. Lawrence and others to the Atlantic Ocean; but that the actual sources of these rivers could not and should not define the boundary.

Further correspondence shows that, up to 1792, when Great Britain was asked to settle the interprovincial boundary question, opinion in Quebec and New Brunswick was divided upon the subject. No settlement, however, was made at the time.

This question of the interprovincial boundary has been discussed at some length, because the southern boundary of Quebec had been held to be the northern boundary of Massachusetts.

In the United States attention apparently had not yet been drawn to the question of their northeastern boundary. This was first officially discussed between representatives of the two countries at the hearings of the St. Croix commission.

The British agent, Chipman, to support his claim for the western or Scoodie branch, instead of the Chiputneticook or north branch of the St. Croix, stated that a due north line from the source of the former would reach such highlands as are described in the treaty of 1783 and that one from the latter would not.

On this point he was in error, as has been previously pointed out, for both of these lines would cross the headwaters of the Restigouche River, which flows into neither the St. Lawrence River nor the Atlantic Ocean, but into Chaleur Bay. It was generally supposed at that time, however, that a line due north from the source of the Scoodie would not intersect the Restigouche.

The United States agent, Sullivan, in opposing the British claim to the Scoodie, maintained that it would be difficult or impossible to decide on the actual position of the northwest angle of Nova Scotia, on the ground.

Sullivan later communicated his opinion of the difficulty in locating the northwest angle of Nova Scotia to Madison, Secretary of State, and suggested that if no highlands just south of the St. Lawrence were found to exist, as had been reported to be the case, it would be advisable to appoint a commission to fix its position—an arbitrary one if necessary. Madison apparently agreed with these ideas and instructed the United States minister to Great Britain to commence negotiations regarding the determination of this part of the boundary in accordance with them.

As a result, in 1803, a convention providing for a commission to run the line north from the source of the St. Croix, and to determine the northwest angle of Nova Scotia, was agreed to. This convention, however, was never ratified, nor was a similar one in 1807, and nothing further was done until after the War of 1812.

Correspondence of officials and other well-informed persons of New Brunswick of the period between 1796, when the St. Croix commission met, and the outbreak of the War of 1812, would indicate that they generally believed that this north line would cross the St. John River, thus throwing into the United States part of the route of land communication between New Brunswick and Quebec. This route by the St. John and Madawaska Valleys was very important as a military road, and in winter was the only route open through British territory.

In 1814, the House of Assembly of New Brunswick passed the following resolution:

*“Resolved, That the Council be requested to appoint a committee to meet a committee of this House, for the purpose of preparing an humble petition to His Royal Highness, the Prince Regent, praying that when a negotiation for peace shall take place between Great Britain and the United States of America, His Royal Highness will be graciously pleased to direct such measures to be adopted as he may think proper to alter the boundaries between those States and this Province, so as that the important line of communication between this and the neighboring Province of Lower Canada, by the River St. John, may not be interrupted.”*

The British negotiators of the treaty of Ghent, which brought the war to a close, attempted to secure the consent of the United States negotiators to some such arrangement, on the ground that the territory involved was small in area and that it was quite probable that it already in reality belonged to Great Britain. The United States negotiators refused, however, claiming that these proposals would mean a cession of United States territory and that to agree to this would exceed their authority.

By Article V of the treaty of Ghent it was provided that since the northwest angle of Nova Scotia had not been determined nor any portion of the international boundary between the source of the River St. Croix and the St. Lawrence River surveyed or marked, two commissioners should be appointed to determine this portion of the boundary in conformity with the provisions of the treaty of 1783; that they should cause the boundary to be surveyed and marked; and that they should have a map made of the boundary to which they should annex a declaration, certifying it to be a true map.

Both parties agreed to consider such maps and declaration as finally and conclusively fixing the boundary. In case the commissioners should differ, or decline or fail to act, reference of the case was to be made to a friendly sovereign or State.

The commissioners appointed under this article were Thomas Barclay, for Great Britain, and Cornelius Van Ness, for the United States. The British agents were Ward Chipman and Ward Chipman, jr., and the United States agent was William C. Bradley. Barclay and Chipman had served on the St. Croix commission and were also to serve on the Passamaquoddy Islands commission.

The commissioners met first at St. Andrews in September, 1816, and, after being sworn, adjourned until the following June when they met in Boston, at which time various surveys were decided upon.

During this and the succeeding three seasons a large number of surveys were made. These included surveys of the line north from the source of the St. Croix; of parts of the Rivers St. John, Allagash, Aroostook, Penobscot, Ouelle, Connecticut, and others; of the district about Mars Hill, the Temiscouata Portage and the Metgermette Portage; and of several ranges of highlands.

Besides these surveys, Dr. J. C. Tiarks, a British astronomer, made a new determination of latitude near the point where the old line of Valentine and Collins intersected the Connecticut River. The negotiators of the treaty of Ghent were apparently unaware that this line had ever been run, although that fact was well known both in Quebec and Vermont, as was also the fact of the departure of the line from the forty-fifth parallel of latitude.

Observations made by Doctor Tiarks and Mr. F. R. Hassler, first Superintendent of the United States Coast and Geodetic Survey, revealed the fact that the old determination of the forty-fifth parallel, made in 1766 near Lake Champlain, was in error by about three-fourths mile, being about that much too far north. As important fortifications had been erected by the United States north of the true forty-fifth parallel, this discovery was not made public at the time, but was reported to the commission only.



The surveyors appointed to run the line due north from the source of the St. Croix were Colonel Bouchette, for Great Britain, and John Johnson, for the United States, together with several assistants. They had two main tasks; one to mark the boundary north of the St. Croix River, the other to run an "exploring line" until it should reach the highlands of the treaty of 1783, thus locating the northwest angle of Nova Scotia.

For this latter purpose, a party under the personal direction of Colonel Bouchette and Mr. Johnson went ahead with the exploring line, while their assistants proceeded more deliberately to survey and mark the true line, which they were to cut out through the woods to a width of 16 feet. The latter party had reached the Meduxnekeag River by the end of the season.

In the meantime, the former party had run their exploring line close by Mars Hill and, crossing the St. John River a little above Grand Falls, by the end of the season had reached the watershed between the St. John and the Restigouche. This exploring line was continued the following year by Mr. Johnson, for the United States, and Mr. Odell, for Great Britain, until in September it reached a tributary of the Metis River, which flows into the St. Lawrence River.

The survey of this exploring line has been described at some length, because in 1842 that portion of it between the source of the St. Croix River and the St. John River was adopted as the boundary.

The commissioners had met, in the meantime, at several different times and places, but adjournments were necessary on account of the noncompletion of the many surveys. They finally met in New York, in the summer of 1821, when the arguments of the agents were heard.

Chipman, the agent for Great Britain, claimed that the boundary should be a line run due north from the source of the St. Croix River to Mars Hill; thence westerly along a range of highlands to near the head of the Chaudiere River; thence along the range at the sources of that river, to that branch of the Connecticut River on which are three small lakes, north of the forty-fifth parallel; thence down the Connecticut River to a point on the forty-fifth parallel as determined by Doctor Tiarks; and thence along that parallel to the St. Lawrence River.

He maintained that the words of the treaty of 1783 describing the northwest angle of Nova Scotia do not fit any locality exactly, since nowhere on a line, due north from the source of the St. Croix, is there a watershed separating rivers which flow into the St. Lawrence River from those which flow into the Atlantic Ocean, but only watersheds separating River St. Lawrence tributaries from rivers flowing into Chaleur Bay, and rivers flowing into Chaleur Bay from tributaries of the St. John River flowing into the Bay of Fundy.

He emphasized the argument that since the St. John River flows into the Bay of Fundy, and since the treaty of 1783 makes a distinction between the Bay of Fundy and the Atlantic Ocean, therefore, as the highlands of the treaty must be found somewhere, they are to be sought for west of the St. John River. He claimed that they were to be found in the range that runs from the sources of the Connecticut to the western sources of the St. John; that one branch of this range ran eastward from the latter point toward Mars Hill, whence it continued in a

northerly direction to Chaleur Bay; that the other branch of this range, which forms the St. Lawrence watershed east and north of those sources of the St. John, and on which the United States agent claimed the northwest angle of Nova Scotia was situated, had not those characteristics of highlands required by the treaty, but were, on the contrary, according to the surveyors' reports, swampy and flat. He quoted Sullivan and Madison in support of the idea that the highlands of the treaty must be a mountainous ridge or range of hills and not a mere watershed. He maintained that the branch of the highlands on which Mars Hill lay had the necessary characteristics and that it was there that the northwest angle of Nova Scotia should be located.

For an additional argument that the North Line should not cross the St. John, assuming that it was impossible to find any location for the northwest angle that literally satisfied the terms of the treaty, he resorted to what he claimed was the intention of the treaty, which, as set forth in the preamble, was to be the mutual advantage and convenience of the two countries. He pointed out the great inconvenience to Great Britain of the line as proposed by the United States agent, in that the only direct winter communication between two British provinces would be cut.

He also drew attention to the fact that the United States negotiators of the treaty, under instructions from Congress, had attempted to secure the St. John River as boundary, but were unsuccessful, and claimed that it was unreasonable to suppose that when the British negotiators had refused to yield to making that river the boundary they would have consented to a boundary which would not only cross it, thereby leaving its upper valley entirely in the United States, but would also yield to that country a portion of the headwaters of the Restigouche.

He claimed that the territory in dispute had been actually occupied and governed by Great Britain, and that Massachusetts had attempted only recently to do so.

With regard to the head of the Connecticut River, he stated that the Connecticut branch, on which are three small lakes, had the distinctive name Connecticut above where Halls Stream, Indian Stream, and Perry Stream join it, and that it was the northwest branch of this Connecticut branch that should be the boundary.

The agent for the United States, Bradley, claimed, on his part, that the boundary should be a line run due north from the source of the St. Croix River to a point on the St. Lawrence River watershed; thence southwesterly along that watershed or range of highlands to the sources of the Connecticut River; thence down the branch of that river known as Halls Stream to the formerly determined forty-fifth parallel; and thence west along that line to the St. Lawrence River.

The United States agent based his claim that the northwest angle of Nova Scotia should be on the St. Lawrence watershed upon the descriptions of the southern boundary of the Province of Quebec, as given in the royal proclamation of 1763 and the Quebec act of 1774; also, upon the boundaries of Nova Scotia as described in the commissions to governors of the Province between 1763 and 1782 as well as upon the instructions by Congress to the negotiators of the treaty of 1783, that if they could not obtain the St. John River from mouth to source as

boundary they were to demand the old boundary between Massachusetts Bay and Nova Scotia.

He maintained that the descriptions of the southern boundary of Quebec in the royal proclamation and the Quebec act place it along the highlands just south of the St. Lawrence; that all maps and records of the time agreed in placing it there; and that the boundary between Nova Scotia and Massachusetts was a line drawn due north from the source of the St. Croix to those highlands.

In regard to the objection that the location claimed by him for the northwest angle of Nova Scotia was not situated on a watershed separating rivers that flow into the St. Lawrence River from those which flow into the Atlantic Ocean, he maintained that the treaty of 1783 took note of only two classes of rivers, those flowing into the St. Lawrence and those flowing into the Atlantic Ocean. Therefore, the Restigouche River should be considered as one flowing into the Atlantic Ocean. In connection with this point he drew attention to the fact that the negotiators of the treaty made use of Mitchell's map of 1755, and that on that map the headwaters of the Restigouche lie much farther to the east than they actually are and do not intervene between the tributaries of the St. Lawrence and the St. John. Therefore, he claimed the intention of the negotiators of the treaty was to place the northwest angle of Nova Scotia where he claimed it to be, on the watershed just south of the St. Lawrence, for on that map that watershed does separate rivers flowing into the St. Lawrence River from those flowing into the Atlantic Ocean.

In regard to the claim of the British agent that the St. John River did not flow into the Atlantic Ocean but into the Bay of Fundy, he pointed out that the royal proclamation and the Quebec act, from which the wording of the treaty was apparently copied, use the word "sea" where the latter uses "Atlantic Ocean." However, he maintained they evidently refer to the same thing, since the term "sea" was as applicable to the Bay of Fundy as to the Atlantic Ocean.

He maintained that it was the intention of the treaty to provide for the survey of only such portions of the boundary as had not previously been surveyed. He, therefore, declared that the old line of the forty-fifth parallel should remain as the boundary, and if this opinion were not sustained he would have to claim for the United States the forty-fifth parallel of geocentric latitude, which would be several miles farther north.

He claimed Halls Stream as the northwesternmost stream of the four rivers, Halls Stream, Indian Stream, Perry Stream, and Connecticut River, which are the four principal sources of the Connecticut north of the forty-fifth parallel.

After the claims, arguments, and replies of the agents had been heard and considered the commissioners delivered their opinions to each other in notes, which are as follows:

*Barclay to Van Ness.*

NEW YORK, 4th October, 1821

The arguments of the agents under the 5th Article of the Treaty of Ghent on the points in controversy having closed, Mr. Barclay, one of the Commissioners, to whom the decision of the said points is referred, hereby states to Mr. Van Ness, the other Commissioner:

1. That on the question as to the Northwest angle of Nova Scotia he is of opinion that the point ought to be established at or near the mountain or hill called Mars Hill distant about



forty miles on a due north line from the source of the river St. Croix and about thirty-seven miles south of the river St. John.

2. That on the question as to the northwesternmost head of Connecticut River, he is of opinion that it is situate at the northwesternmost stream which empties into the third lake of Connecticut River, north of the 45th degree of north latitude.

3. He is of opinion that the point established by Dr. J. C. Tiarks, His Majesty's Astronomer, on geographical principles to be the 45th degree of north latitude, on Connecticut River, is the point which ought to be established by the Commissioners, as the said 45th degree of north latitude on the said River.

4. That the mode or principles on which the parallel of the said 45th degree of Latitude ought to be run, surveyed and marked, should be according to ordinary geographical principles.

THOS. BARCLAY

*Van Ness to Barclay.*

NEW YORK, *October 4th, 1821*

The arguments of the agents under the 5th article of the Treaty of Ghent on the points in controversy having closed, Mr. Van Ness, one of the Commissioners to whom the decision of the said points is referred, hereby states to Col. Barclay, the other Commissioner, that on the question as to the northwest angle of Nova Scotia, he is of opinion that that point ought to be fixed at a place about one hundred and forty-four miles due north from the source of the River St. Croix, and about sixty-six miles north of the River St. John and that on the question as to the northwesternmost head of Connecticut River he is of opinion that that point ought to be established at the head of the west branch of Indian Stream; and that these opinions he will report to the two Governments agreeably to the provisions of the said treaty.

As to the questions which have been made by the Agents relative to the Boundary from Connecticut River to the River St. Lawrence or Iroquois, Mr. Van Ness will inform Col. Barclay by the first day of November next, whether he shall consider it necessary to report any opinion on that subject, and if so, he will state to the Col. that opinion.

C. P. VAN NESS

BURLINGTON, *Nov. 10, 1821*

The Hon'ble THOS. BARCLAY

DEAR SIR: Yours of the 22nd of October has been duly received.

I have concluded that it will not be necessary for me to report any opinion on the questions which have been made relative to the Boundary Line from Connecticut River to the River Iroquois.

I intended to have made this communication sooner, but have been unavoidably prevented from doing it before.

I am, very respectfully your obedient servant,

C. P. VAN NESS

With regard to the points about the forty-fifth parallel, it is worthy of note that Mr. Van Ness did not support the claim of the United States agent that the boundary from the Connecticut to the St. Lawrence should be the forty-fifth parallel of geocentric latitude, nor was this view ever adopted by the United States Government.

With regard to the northwesternmost head of the Connecticut River, Mr. Van Ness chose Indian Stream rather than Halls Stream because Halls Stream empties into the Connecticut River south of the old line determined as parallel 45°.

After the commissioners had submitted to each other their opinions, and failed to agree, they prepared reports for the two Governments, in accordance with the terms of the treaty of Ghent, upon their reasons for their decisions on the various points.

The treaty of Ghent had provided that, in case the commissioners should be unable to come to an agreement, the question should be referred to some friendly sovereign or State; and after somewhat lengthy negotiations, a convention was

agreed to in 1827 and ratified in 1828, under which the King of the Netherlands was chosen as arbitrator.

This convention also provided that in view of the great number and complication of all the documents bearing on the case, these should be replaced by new and separate statements of the respective cases of each country and that these statements were to be submitted by each to the other and each was to have the right to a statement in reply. It was also agreed that the only official maps were to be the Mitchell map of 1755 as used by the negotiators of the treaty of 1783 and map "A" as accepted by the commissioners under Article V of the treaty of Ghent to show the claims of the two countries.

The United States statement, prepared by Albert Gallatin, with the aid of Wm. C. Preble, is entitled, "Statement on the Part of the United States of the Case Referred in Pursuance of the Convention of the 29th of September 1827, Between the Said States and Great Britain to His Majesty, the King of the Netherlands for His Decision Thereon, Printed but not Published. Washington. Printed at the Office of the United States Telegraph, 1829." It is a comparatively short statement of the case for the United States.

A similar statement of the British case, prepared by Henry U. Addington and William Huskisson, with the aid of Ward Chipman, jr., of New Brunswick, is entitled "First Statement on the Part of Great Britain, According to the Provisions of the Convention Concluded Between Great Britain and the United States on the 29th Sept. 1827 for Regulating the Reference to Arbitration of the Disputed Points of Boundary under the Fifth Article of the Treaty of Ghent."

Dr. Ganong says of these two statements:

"Indeed for a summary of the two sides of the discussion, freed as largely as possible of controversial matter, nothing equals these two presentations giving the matured positions of both parties."

To this British statement, the United States replied in a lengthy "Definitive statement." It answers in detail the British claims, but only two new arguments are introduced: One, based on a claim that the instructions to the negotiators of the treaty of 1783, referring to the source of the St. John, meant the source of the Madawaska; and the other calling attention to the New Brunswick claim for the St. Lawrence watershed as her northern boundary in the interprovincial boundary dispute between that Province and Quebec. It prints many treaties and other documents in full as appendices.

The reply of the British to the United States statement was shorter, with little new argument; but it claimed that an interprovincial dispute could have no bearing on an international question.

These statements, together with a copy of Mitchell's map of 1755 and one of map "A" used by the commissioners appointed under Article V of the treaty of Ghent, were submitted to the King of the Netherlands in 1830.

The decision of the King of the Netherlands was given a few months later. In this decision, after summarizing the evidence submitted by both sides regarding the northwest angle of Nova Scotia, he maintained that it had not been proved

that the boundaries established by the treaty of 1783 were identical with the ancient boundaries, when all the disputed territory was a British possession. Continuing he said:

"That, in view of what precedes, the arguments adduced on either side, and the documents exhibited in support of them, can not be considered as sufficiently preponderating to determine a preference in favor of either one of the two lines respectively claimed by the High Interested Parties, as the boundaries of their possessions, from the source of the river St. Croix to the Northwesternmost head of the Connecticut river; and that the nature of the difference and the vague and not sufficiently determinate stipulations of the Treaty of 1783, do not permit us to award either of those lines to one of the said Parties, without violating the principles of law and equity with regard to the other:

"That, as has already been said, the question resolves itself into the selection of ground dividing the rivers that empty themselves into the river St. Lawrence from those that fall into the Atlantic Ocean; that the High Interested Parties are agreed with regard to the course of the streams delineated by common accord on Map A and affording the only basis of a decision;

"And that, therefore, the circumstances upon which such decision depends could not be further elucidated by means of fresh topographical investigation, nor by the production of additional documents:"

The King then advised that a conventional boundary should be agreed to and adopted. This boundary was to start at the source of the St. Croix River and to run due north to the middle of the St. John River; thence along the middle of the channel of the St. John River to the mouth of the St. Francis River; thence along the middle of the channel of that river to the source of its southwesternmost branch; thence due west until the watershed of the St. Lawrence River was reached; thence along that watershed to the northwesternmost source of the Connecticut River (which he decided to be the Connecticut branch, the most easterly of the four main head branches); thence along the Connecticut River to the astronomical parallel of  $45^{\circ}$ , as recently determined; and thence along that parallel, and not along the old line of Valentine and Collins, to the St. Lawrence River. However, he recommended that the United States be left in possession of territory within a circle of 1 kilometer radius from their fortifications at Rouses Point.

The United States minister at The Hague at once protested against this award, on the ground that the King, in recommending the adoption of a new line of boundary rather than in deciding on which of the two lines claimed by the United States and Great Britain was in accordance with the terms of the treaty of 1783, had exceeded the authority delegated to him by the two parties.

The Government of Great Britain was willing to accept the award, and the United States might have agreed to it, had it not been for the vigorous opposition of the States of Massachusetts and Maine. The latter had been made a separate State in 1820, while the former retained an interest in certain of the public lands.

The United States Senate rejected the award, and at the same time instructed the President to renew negotiations with the British Government for the settlement of the boundary question.

These negotiations began at once and lasted 10 years, during which time many proposals and counterproposals were made. In the meantime, Maine was offered 1,000,000 acres of land for territory north and east of the St. Francis. In 1833, Mr. Livingston, Secretary of State, proposed to Great Britain that another effort be made to locate the boundary in accordance with the terms of the treaty of 1783,



and, if unsuccessful, a boundary more convenient to both parties than the one of the treaty of 1783 or of the award might be adopted.

The British Government asked for further particulars as to what this proposal meant. Mr. Livingston, in reply, suggested having an attempt made to determine the boundary according to the treaty of 1783 by a commission of European experts, with an umpire nominated by some friendly sovereign; and if it should be found, after more accurate surveys, that the due-north line from the source of the St. Croix did not reach such highlands as were described in the treaty, a direct line, whatever its direction, from the head of the St. Croix to such highlands should be adopted, and in no case would this line deviate to the east from the due-north line.

The British Government replied that it believed such a line would run nearly due west from the source of the St. Croix to near the source of the Chaudiere, and that the United States would never agree to such a line.

Great Britain formally withdrew the offer to accept the award of the King of the Netherlands and proposed making the St. John River, from its intersection with the north line to its source, the boundary. The United States rejected this proposal, but offered to try to get the State of Maine to accept the St. John River from mouth to source as boundary. This offer the British minister at once declined.

In 1837 the President of the United States informed Congress that the only result of the long negotiations and arbitrations was a belief on the part of the British Government that it was impossible to ascertain the true boundary according to the treaty of 1783, and therefore a conventional line should be adopted.

The next year the Legislature of the State of Maine voted against accepting a conventional line, demanded that the line be established in accordance with the treaty of 1783, refused to consent to the appointment of an arbitrator, urged Congress to pass a law providing for the survey of the boundary either alone or in conjunction with Great Britain, and stated that if this last were not done it would be the duty of the governor of the State to appoint a commission for that purpose.

Congress did not comply with this request and the Governor of the State of Maine appointed a commission consisting of Messrs. John G. Deane, M. O. Norton, and J. Irish.

Apparently this commission did no other work than follow the north line to its termination on the St. Lawrence watershed. They did not survey any line as the northern boundary of the State. They made a report to the Governor of Maine, with a map of the disputed territory, locating the northwest angle near the St. Lawrence River.

In the meantime, from 1820, there had been considerable friction between the people of New Brunswick and of Maine. In that year the United States assumed jurisdiction over the Madawaska settlement by including the settlers there in its official census. Soon after, New Brunswick assumed rights to the territory claimed by Great Britain, including the Aroostook Valley. After correspondence between the two governors, an agreement was reached that no exercise of authority before the dispute was settled was to affect the decision; but in spite of this agreement this friction continued and grew worse, resulting finally in 1838 in what was known as the Aroostook war.

In 1839, General Winfield Scott succeeded in getting the Provincial and State authorities to agree that, pending a settlement, New Brunswick was to be in control of the Madawaska district, and Maine of the Aroostook Valley, and that armed forces would be withdrawn. Both sides agreed not to build roads, grant land, or allow timber to be cut in the disputed territory until a settlement of the boundary should be made, but, in spite of this agreement, more or less friction continued until the boundary was finally settled in 1842.

Similar troubles over the question of jurisdiction on Indian Stream took place in 1836, but they did not cause such a widespread or dangerous state of feeling as did those on the Maine-New Brunswick frontier.

In 1838 the United States proposed the formation of a new commission, to which Great Britain finally agreed; and after the formation of this had been agreed to, negotiations as to its constitution occupied two years.

During these negotiations the British Government, for the purpose of securing additional and more accurate information about the disputed territory, had surveys made of it by two engineers, Colonel Mudge and Mr. Featherstonhaugh. They were instructed in particular to determine which of the three following lines present continuous highlands:

First. The line claimed by the British commissioners from the source of the Chaudiere to Mars Hill.

Second. The line from the source of the Chaudiere to the point at which a line drawn from that source to the western extremity of Chaleur Bay intercepts the true north line.

Third. The line claimed by the United States from the source of the Chaudiere to the point at which they claimed the due north line should end.

The surveys were made during the summer of 1839, and a report was presented and published in 1840.

The engineers reported finding an "axis of maximum elevation" in the general location indicated in the second item of their instructions. They reported that no highlands existed at the northwest angle of Nova Scotia claimed by the United States. The elevation at that point they declared to be only 400 feet. (It was later shown to be about 1,300 feet.)

In the report they reviewed the entire boundary question, and insisted that the highlands of the treaty of 1783 must be a continuous mountain range and could not consist even in part of a flat watershed. They stated that the "axis of maximum elevation" on a line between the source of the Chaudiere and Chaleur Bay answered these requirements, but recommended that the boundary should be on another range of highlands, namely, on a northwesterly line from the source of the St. Croix, or rather from the source of the Scoddie, to the source of the Chaudiere, claiming that a proper translation of the charter of 1621 to Alexander supported this pretension. Their views were not formally adopted by the British Government.

The State of Maine appointed a joint committee of the senate and house of representatives, which made a report on March 30, 1841, setting forth the case for the State of Maine, in reply to this report of Messrs. Mudge and Featherstonhaugh.

In 1840 Congress authorized the appointment of a commission, consisting of Messrs. Renwick and Talcott and Major Graham, to make surveys in the disputed territory. Surveys were made of the north line and of the rivers and mountain ranges in the disputed territory. No complete report was ever made, but three interim reports heavily discounted that of Mudge and Featherstonhaugh as to the "axis of maximum elevation."

One survey of particular importance was that of a due-north line from the source of the St. Croix River which was run very accurately by Major Graham and was continued nearly to Grand River. He found that the exploring line of Bouchette and Johnson deviated first to the east and then to the west until, when the St. John River was reached, the exploring line was nearly half a mile west of the true north line.

In 1841 Daniel Webster, Secretary of State, proposed to the British Government that an attempt be made to settle the boundary question, as well as some others, by direct negotiation rather than by the commission agreed to in 1838, the constitution of which was still under discussion. This the British Government agreed to, and appointed as their minister plenipotentiary Lord Ashburton, who arrived in Washington in April, 1842, and negotiations began at once.

Various proposals and counterproposals were made in consultation and confirmed formally by notes. Lord Ashburton proposed as the boundary the exploring north line; the St. John River, from where the north line reached it to its source, but with a deflection to the south of it to include in British territory all the Madawaska settlement; the Highlands, from the source of the Chaudiere to Halls Stream, formerly agreed on by both countries; Halls Stream and the "old line" of the forty-fifth parallel, with certain rights of navigation on the St. John River through New Brunswick.

Mr. Webster replied, refusing this offer, and suggested that if Lord Ashburton would agree to cede all or part of the territory east of the St. Croix River and the north line extending to the St. John River, it might be arranged to accept a line south of the St. John River and west of the north line; otherwise, he refused to let Great Britain retain any territory south of the St. John River above the north line.

If Lord Ashburton could not agree to the above cession, Mr. Webster proposed, on the advice of representatives of the States of Maine and Massachusetts, that the boundary should be the exploring north line; the St. John River from where that line reaches it to 3 miles above the Madawaska River; thence a straight line to the outlet of Long Lake; thence westerly to the head of Lake Pohenagamook, and continuing in the same line to the highlands formerly claimed as boundary by the United States.

If Lord Ashburton was willing to agree to either of the above proposals, and in addition to concede the right of navigation on the St. John River, Mr. Webster was willing to discuss the remainder of the boundary.

Lord Ashburton refused even to consider the first offer, as his instructions did not permit him to cede any territory east of the St. Croix River and north line, or Grand Manan Island or any of the islands of Passamaquoddy Bay.



He declined the second offer, as it gave Great Britain much less territory north of the St. John than she would have obtained under the award of the King of the Netherlands, to say nothing of the award in her favor on the forty-fifth parallel and at the source of the Connecticut, besides granting the valuable right to navigation on the St. John River.

The two plenipotentiaries then apparently abandoned written communications and met in private, coming to an agreement on an avowedly conventional boundary as described in the treaty of 1842, but just how or why the exact terms were decided upon can only be surmised. The treaty, which was signed in Washington on August 9, 1842, finally settled this portion of the boundary.

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## APPENDIX II

### NEGOTIATIONS, TREATIES, AND CONVENTIONS PERTAINING TO THE BOUNDARY, AND REPORTS OF BOUNDARY COMMISSIONS PREVIOUS TO THE TREATY OF 1908<sup>1</sup>

The first definition of the international boundary from the source of the St. Croix River to the St. Lawrence River appears in the provisional articles of peace, concluded November 30, 1782, between the United States and Great Britain. This description of the boundary was repeated in the definitive treaty of peace of 1783 as Article II, the full text of which is here reprinted:

#### DEFINITIVE TREATY OF PEACE

*(Concluded at Paris September 3, 1783; ratified by the Congress of the United States January 14, 1784; ratified by Great Britain April 9, 1784)*

\* \* \* \* \*

#### ARTICLE II

And that all disputes which might arise in future, on the subject of the boundaries of the said United States may be prevented, it is hereby agreed and declared, that the following are, and shall be their boundaries, viz: From the northwest angle of Nova Scotia, viz. that angle which is formed by a line drawn due north from the source of Saint Croix River to the Highlands; along the said Highlands which divide those rivers that empty themselves into the river St. Lawrence, from those which fall into the Atlantic Ocean, to the northwesternmost head of Connecticut River; thence down along the middle of that river, to the forty-fifth degree of north latitude; from thence, by a line due west on said latitude, until it strikes the river Iroquois or Cataraquy; thence along the middle of said river into Lake Ontario, through the middle of said lake until it strikes the communication by water between that lake and Lake Erie; thence along the middle of said communication into Lake Erie, through the middle of said lake until it arrives at the water communication between that lake and Lake Huron; thence along the middle of said water communication into the Lake Huron; thence through the middle of said lake to the water communication between that lake and Lake Superior; thence through Lake Superior northward of the Isles Royal and Phelipeaux, to the Long Lake; thence through the middle of said Long Lake, and the water communication between it and the Lake of the Woods, to the said Lake of the Woods; thence through the said lake to the most northwestern point thereof, and from thence on a due west course to the river Mississippi; thence by a line to be drawn along the middle of the said river Mississippi until it shall intersect the northernmost part of the thirty-first degree of north latitude. South, by a line to be drawn due east from the determination of the line last mentioned, in the latitude of thirty-one degrees north of the Equator, to the middle of the river Apalachicola or Catahouche; thence along the middle thereof to its junction with the Flint River; thence strait to the head of St. Mary's River; and thence down along the middle of St. Mary's River to the Atlantic Ocean. East, by a line to be drawn along the middle of the river St. Croix, from its mouth in the Bay of Fundy to its source, and from its source directly north to the aforesaid Highlands, which divide the rivers that fall into the Atlantic Ocean from those which fall into the river St. Lawrence; comprehending all islands within twenty leagues of any part of the shores of the United States, and lying between lines to be drawn due east from the points where the aforesaid boundaries between Nova Scotia on the one part, and East Florida on the other, shall respectively touch the Bay of Fundy and the Atlantic Ocean; excepting such islands as now are, or heretofore have been, within the limits of the said province of Nova Scotia.

<sup>1</sup> The text of the treaties and conventions has been taken from "Treaties, Conventions, International Acts, Protocols, and Agreements between the United States of America and other Powers," Vol. I, by W. M. Malloy. This differs from other published texts only in unimportant details of punctuation, capitalization, division into paragraphs, and order of precedence.

The only official record of the intentions of the negotiators of the treaty of 1783 as to the actual location of the boundary is contained in the text of the treaty, for the negotiators did not attach to the treaty a copy of the map used by them in arriving at their agreements. They failed to realize that, owing to the imperfect knowledge of the topography of the country at that time, the identification of places named in the treaty might be disputed. Disputes soon occurred, the first over the identification of the St. Croix River. Much discussion followed, but no successful steps in the settlement of this difference of opinion were taken until, in the negotiation of the treaty of 1794, an article was included providing for a joint commission to decide this question.

The text of this article follows:

### TREATY OF AMITY, COMMERCE, AND NAVIGATION

*(Concluded November 19, 1794; ratifications exchanged October 28, 1795)*

\* \* \* \* \*

#### ARTICLE V

Whereas doubts have arisen what river was truly intended under the name of the river St. Croix, mentioned in the said treaty of peace, and forming a part of the boundary therein described; that question shall be referred to the final decision of commissioners to be appointed in the following manner, viz:

One commissioner shall be named by His Majesty, and one by the President of the United States, by and with the advice and consent of the Senate thereof, and the said two commissioners shall agree on the choice of a third; or if they can not so agree, they shall each propose one person, and of the two names so proposed, one shall be drawn by lot in the presence of the two original Commissioners. And the three Commissioners so appointed shall be sworn, impartially to examine and decide the said question, according to such evidence as shall respectively be laid before them on the part of the British Government and of the United States. The said Commissioners shall meet at Halifax, and shall have power to adjourn to such other place or places as they shall think fit. They shall have power to appoint a Secretary, and to employ such surveyors or other persons as they shall judge necessary. The said Commissioners shall, by a declaration, under their hands and seals, decide what river is the river St. Croix, intended by the treaty. The said declaration shall contain a description of the said river, and shall particularize the latitude and longitude of its mouth and of its source. Duplicates of this declaration, and of the statements of their accounts, and of the journal of their proceedings, shall be delivered by them to the agent of His Majesty, and to the agent of the United States, who may be respectively appointed and authorized to manage the business on behalf of the respective Governments. And both parties agree to consider such decision as final and conclusive, so as that the same shall never thereafter be called into question, or made the subject of dispute or difference between them.

The commission authorized by Article V of the treaty of 1794 was organized October 4, 1796, and under its direction surveys were made of Passamaquoddy Bay and the rivers entering into the dispute. Much evidence was considered, but before a decision was handed down the commissioners asked for modifications of their instructions. These were negotiated and made a part of the treaty of 1794 by the acceptance by both Governments of the following explanatory article:

#### EXPLANATORY ARTICLE (1798) TO THE TREATY OF NOVEMBER 19, 1794, RELEASING THE COMMISSIONERS UNDER THE FIFTH ARTICLE FROM PARTICULARIZING THE LATITUDE AND LONGITUDE OF THE RIVER ST. CROIX

*(Concluded March 15, 1798)*

Whereas by the twenty-eighth article of the treaty of amity, commerce, and navigation between His Britannic Majesty and the United States, signed at London on the nineteenth day



of November, one thousand seven hundred and ninety-four, it was agreed that the contracting parties would, from time to time, readily treat of and concerning such further articles as might be proposed; that they would sincerely endeavour so to form such articles as that they might conduce to mutual convenience and tend to promote mutual satisfaction and friendship; and that such articles, after having been duly ratified, should be added to and make a part of that treaty: And whereas difficulties have arisen with respect to the execution of so much of the fifth article of the said treaty as requires that the Commissioners appointed under the same should in their description particularize the latitude and longitude of the source of the river which may be found to be the one truly intended in the treaty of peace between His Britannic Majesty and the United States, under the name of the river St. Croix, by reason whereof it is expedient that the said Commissioners should be released from the obligation of conforming to the provisions of the said article in this respect. The undersigned being respectively named by His Britannic Majesty and the United States of America their Plenipotentiaries for the purpose of treating of and concluding such articles as may be proper to be added to the said treaty, in conformity to the above-mentioned stipulation, and having communicated to each other their respective full powers, have agreed and concluded, and do hereby declare in the name of His Britannic Majesty and of the United States of America, that the Commissioners appointed under the fifth article of the above-mentioned treaty shall not be obliged to particularize, in their description, the latitude and longitude of the source of the river which may be found to be the one truly intended in the aforesaid treaty of peace under the name of the river St. Croix, but they shall be at liberty to describe the said river, in such other manner as they may judge expedient, which description shall be considered as a complete execution of the duty required of the said Commissioners in this respect by the article aforesaid. And to the end that no uncertainty may hereafter exist on this subject, it is further agreed, That as soon as may be after the decision of the said Commissioners, measures shall be concerted between the Government of the United States and His Britannic Majesty's Governors or Lieutenant Governors in America, in order to erect and keep in repair a suitable monument at the place ascertained and described to be the source of the said river St. Croix, which measures shall immediately thereupon, and as often afterwards as may be requisite, be duly executed on both sides with punctuality and good faith.

This explanatory article, when the same shall have been ratified by His Majesty and by the President of the United States, by and with the advice and consent of their Senate, and the respective ratifications mutually exchanged, shall be added to and make a part of the treaty of amity, commerce, and navigation between His Majesty and the United States, signed at London on the nineteenth day of November, one thousand seven hundred and ninety-four, and shall be permanently binding upon His Majesty and the United States.

In witness whereof we, the said undersigned Plenipotentiaries of His Britannic Majesty and the United States of America, have signed this present article, and have caused to be affixed thereto the seal of our arms.

Done at London this fifteenth day of March, one thousand seven hundred and ninety-eight.

[SEAL.]

GRENVILLE.

[SEAL.]

RUFUS KING.

The commissioners gave their decision on October 25, 1798, which was as follows:

#### DECLARATION OF THE COMMISSIONERS UNDER THE FIFTH ARTICLE OF THE TREATY OF 1794

"Declaration of the Commissioners under the Fifth Article of the Treaty of 1794, between the United States and Great Britain, respecting the true River St. Croix, by Thomas Barclay, David Howell and Egbert Benson, Commissioners appointed in pursuance of the 5th Article of the Treaty of Amity, Commerce, and Navigation, between His Britannic Majesty and the United States of America, finally to decide the question, 'What River was truly intended under the name of the River Saint Croix mentioned in the treaty of Peace between His Majesty and the United States, and forming a part of the boundary therein described.'

"We, the said Commissioners, having been sworn 'impartially to examine and decide the said question, according to such evidence as should respectively be laid before us, on the part of the British Government, and of the United States,' and having heard the evidence which hath been laid before us, by the Agent of His Majesty, and the Agent of the United States, respectively appointed and authorized to manage the business on behalf of the respective Governments, have decided, and hereby do decide, the River, hereinafter particularly

described and mentioned, to be the River truly intended under the name of the River Saint Croix, in the said Treaty of Peace, and forming a part of the boundary therein described; that is to say, the mouth of the said river is in Passamaquoddy Bay, at a point of land called Joe's Point,<sup>2</sup> about one mile northward from the northern part of Saint Andrew's Island, and in the latitude of forty-five degrees five minutes and five seconds north, and in the longitude of sixty-seven degrees twelve minutes and thirty seconds west, from the Royal Observatory at Greenwich, in Great Britain, and three degrees fifty-four minutes and fifteen seconds east from Harvard College, in the University of Cambridge, in the State of Massachusetts, and the course of the said river up from its said mouth, is northerly to a point of land called the Devil's Head, then turning the said point, is westerly to where it divides into two streams, the one coming from the westward, and the other coming from the northward, having the Indian name of Chiputnaticook or Chibuitcook, as the same may be variously spelt, then up the said stream, so coming from the northward to its source, which is at a stake near a Yellow Birch Tree, hooped with iron, and marked S. T. and J. H. 1797, by Samuel Titcomb and John Harris, the Surveyors employed to survey the above mentioned stream, coming from the northward. And the said River is designated on the Map hereunto annexed, and hereby referred to as farther descriptive of it, by the letters A B C D E F G H I K and L, the letter A being at its said mouth, and the letter L being at its said source; and the course and distance of the said source from the Island, at the confluence of the above-mentioned two streams, is, as laid down on the said map, north five degrees and about fifteen minutes west, by the magnet, about forty-eight miles and one quarter.

"In testimony whereof, we have hereunto set our hands and seals, at Providence, in the State of Rhode Island, the twenty-fifth day of October, in the year one thousand seven hundred and ninety-eight.

"(L. S.) THOMAS BARCLAY,  
 "(L. S.) DAVID HOWELL,  
 "(L. S.) EGBERT BENSON.

"Witness, ED. WINSLOW,  
*"Secretary to the Commissioners."*

A convention "to ascertain and determine the said northwest angle of Nova Scotia \* \* \*" was negotiated in 1803, but was never ratified. A similar unsuccessful attempt to effect a settlement was made in 1807. Under the provisions of Article V of the treaty of Ghent, an attempt was made to settle the boundary dispute by the creation of a commission which was organized September 23, 1816. Their investigation of the dispute was thorough, but they were unable to reach an agreement, and accordingly they submitted separate reports, exchanged notes expressing their respective opinions, and brought their final session to a close on April 13, 1822.

The text of Articles IV and V of the treaty of Ghent follows:

#### TREATY OF PEACE AND AMITY (TREATY OF GHENT)

*(Concluded at Ghent December 24, 1814; ratifications exchanged February 17, 1815)*

\* \* \* \* \*

#### ARTICLE IV

Whereas it was stipulated by the second article in the treaty of peace of one thousand seven hundred and eighty-three, between His Britannic Majesty and the United States of America, that the boundary of the United States should comprehend all islands within twenty leagues of any part of the shores of the United States, and lying between lines to be drawn due east from the points where the aforesaid boundaries, between Nova Scotia on the one part, and East Florida on the other, shall respectively touch the Bay of Fundy and the Atlantic Ocean, excepting such islands as now are, or heretofore have been, within the limits of Nova Scotia; and whereas the several islands in the Bay of Passamaquoddy, which is part of the Bay of Fundy, and the Island of Grand Menan, in the said Bay of Fundy, are claimed by the United States as being comprehended within their aforesaid boundaries, which said islands are claimed as belonging

<sup>2</sup> This is "Ive's Point" in some of the copies of the award, but in the original it is properly given as Joe's Point.



to His Britannic Majesty, as having been, at the time of and previous to the aforesaid treaty of one thousand seven hundred and eighty-three, within the limits of the Province of Nova Scotia; In order, therefore, finally to decide upon these claims, it is agreed that they shall be referred to two Commissioners to be appointed in the following manner, viz: One Commissioner shall be appointed by His Britannic Majesty, and one by the President of the United States, by and with the advice and consent of the Senate thereof; and the said two Commissioners so appointed shall be sworn impartially to examine and decide upon the said claims according to such evidence as shall be laid before them on the part of His Britannic Majesty and of the United States respectively. The said Commissioners shall meet at St. Andrews, in the Province of New Brunswick, and shall have power to adjourn to such other place or places as they shall think fit. The said Commissioners shall, by a declaration or report under their hands and seals, decide to which of the two contracting parties the several islands aforesaid do respectively belong, in conformity with the true intent of the said treaty of peace of one thousand seven hundred and eighty-three. And if the said Commissioners shall agree in their decision, both parties shall consider such decision as final and conclusive. It is further agreed that, in event of the two Commissioners differing upon all or any of the matters so referred to them, or in the event of both or either of the said Commissioners refusing, or declining, or wilfully omitting to act as such, they shall make, jointly or separately, a report or reports, as well to the Government of His Britannic Majesty as to that of the United States, stating in detail the points on which they differ, and the grounds upon which their respective opinions have been formed, or the grounds upon which they, or either of them, have so refused, declined, or omitted to act. And His Britannic Majesty and the Government of the United States hereby agree to refer the report or reports of the said Commissioners to some friendly sovereign or State, to be then named for that purpose, and who shall be requested to decide on the differences which may be stated in the said report or reports, or upon the report of one Commissioner, together with the grounds upon which the other Commissioner shall have refused, declined or omitted to act, as the case may be. And if the Commissioner so refusing, declining or omitting to act, shall also wilfully omit to state the grounds upon which he has so done, in such manner that the said statement may be referred to such friendly sovereign or State, together with the report of such other Commissioner, then such sovereign or State shall decide *ex parte* upon the said report alone. And His Britannic Majesty and the Government of the United States engage to consider the decision of such friendly sovereign or State to be final and conclusive on all the matters so referred.

## ARTICLE V

Whereas neither that point of the highlands lying due north from the source of the river St. Croix, and designated in the former treaty of peace between the two Powers as the northwest angle of Nova Scotia, nor the northwesternmost head of Connecticut River has yet been ascertained; and whereas that part of the boundary line between the dominions of the two Powers which extends from the source of the river St. Croix directly north to the abovementioned northwest angle of Nova Scotia, thence along the said highlands which divide those rivers that empty themselves into the river St. Lawrence from those which fall into the Atlantic Ocean to the northwesternmost head of Connecticut River, thence down along the middle of that river to the forty-fifth degree of north latitude; thence by a line due west on said latitude until it strikes the river Iroquois or Cataraquy, has not yet been surveyed; it is agreed that for these several purposes two Commissioners shall be appointed, sworn and authorized to act exactly in the manner directed with respect to those mentioned in the next preceding article, unless otherwise specified in the present article. The said Commissioners shall meet at St. Andrews, in the Province of New Brunswick, and shall have power to adjourn to such other place or places as they shall think fit. The said Commissioners shall have power to ascertain and determine the points above mentioned, in conformity with the provisions of the said treaty of peace of one thousand seven hundred and eighty-three, and shall cause the boundary aforesaid, from the source of the river St. Croix to the river Iroquois or Cataraquy, to be surveyed and marked according to the said provisions. The said Commissioners shall make a map of the said boundary, and annex to it a declaration under their hands and seals, certifying it to be the true map of the said boundary and particularizing the latitude and longitude of the northwest angle of Nova Scotia, of the northwesternmost head of Connecticut River, and of such other points of the said boundary, as they may deem proper. And both parties agree to consider such map and declaration as finally and conclusively fixing the said boundary. And in the event of the said two Commissioners differing, or both or either of them refusing, declining, or wilfully omitting to act, such reports, declarations or statements shall be made by them, or either of them, and such reference to a friendly sovereign or State shall be made in all respects as in the latter part of the fourth article is contained, and in as full a manner as if the same was herein repeated.



The treaty of Ghent provided that, if the commissioners acting under Article V could not agree, the boundary question should be submitted to "some friendly sovereign or State, to be then named for that purpose, and who shall be requested to decide on the differences."

After some years of delay, boundary disputes again brought the matter to the attention of the two Governments, with the result that a convention was concluded September 29, 1827, the text of which follows:

CONVENTION PROVIDING FOR THE SUBMISSION TO ARBITRATION OF THE DISPUTE  
CONCERNING THE NORTHEASTERN BOUNDARY

*(Concluded September 29, 1827; ratifications exchanged April 2, 1828)*

ARTICLES

- |                                    |                           |
|------------------------------------|---------------------------|
| I. Reference of difficulties.      | V. Delivery of statement. |
| II. Statement of respective cases. | VI. Procedure.            |
| III. Evidence.                     | VII. Decision.            |
| IV. Maps.                          | VIII. Ratification.       |

Whereas it is provided by the fifth article of the treaty of Ghent, that, in case the Commissioners appointed under that article, for the settlement of the boundary line therein described, should not be able to agree upon such boundary line, the report or reports of those Commissioners, stating the points on which they had differed, should be submitted to some friendly Sovereign or State, and that the decision given by such Sovereign or State, on such points of difference, should be considered by the contracting parties as final and conclusive; That case having now arisen, and it having, therefore, become expedient to proceed to and regulate the reference as above described, the United States of America and His Majesty the King of the United Kingdom of Great Britain and Ireland have, for that purpose, named their Plenipotentiaries, that is to say:

The President of the United States has appointed Albert Gallatin, their Envoy Extraordinary and Minister Plenipotentiary at the Court of His Britannick Majesty; and His said Majesty, on his part, has appointed the Right Honourable Charles Grant, a member of Parliament, a member of His said Majesty's Most Honourable Privy Council, and President of the Committee of the Privy Council for Affairs of Trade and Foreign Plantations, and Henry Unwin Addington, Esquire;

Who after having exchanged their respective full powers, found to be in due and proper form, have agreed to and concluded the following articles:

ARTICLE I

It is agreed that the points of difference which have arisen in the settlement of the boundary between the American and British dominions, as described in the 5th article of the treaty of Ghent, shall be referred, as therein provided, to some friendly Sovereign or State, who shall be invited to investigate, and make a decision upon, such points of difference.

The two contracting Powers engage to proceed in concert, to the choice of such friendly Sovereign or State, as soon as the ratifications of this convention shall have been exchanged, and to use their best endeavours to obtain a decision, if practicable, within two years after the Arbiter shall have signified his consent to act as such.

ARTICLE II

The reports and documents, thereunto annexed, of the Commissioners appointed to carry into execution the 5th article of the treaty of Ghent, being so voluminous and complicated as to render it improbable that any Sovereign or State should be willing or able to undertake the office of investigating and arbitrating upon them, it is hereby agreed to substitute, for those reports, new and separate statements of the respective cases, severally drawn up by each of the contracting parties, in such form and terms as each may think fit.

The said statements, when prepared, shall be mutually communicated to each other by the contracting parties, that is to say, by the United States to His Britannick Majesty's Minister

or Chargé d'Affaires at Washington, and by Great Britain to the Minister or Chargé d'Affaires of the United States at London, within fifteen months after the exchange of the ratifications of the present convention.

After such communication shall have taken place, each party shall have the power of drawing up a second and definitive statement, if it thinks fit so to do, in reply to the statement of the other party, so communicated, which definitive statements shall also be mutually communicated, in the same manner as aforesaid, to each other, by the contracting parties, within twenty-one months after the exchange of ratifications of the present convention.

#### ARTICLE III

Each of the contracting parties shall, within nine months after the exchange of ratifications of this convention, communicate to the other, in the same manner as aforesaid, all the evidence intended to be brought in support of its claim, beyond that which is contained in the reports of the Commissioners, or papers thereunto annexed, and other written documents laid before the Commission, under the 5th article of the treaty of Ghent.

Each of the contracting parties shall be bound, on the application of the other party, made within six months after the exchange of the ratifications of this convention, to give authentic copies of such individually specified acts of a public nature, relating to the territory in question, intended to be laid as evidence before the Arbiter, as have been issued under the authority, or are in the exclusive possession, of each party.

No maps, surveys, or topographical evidence of any description, shall be adduced by either party, beyond that which is hereinafter stipulated, nor shall any fresh evidence of any description be adduced or adverted to, by either party, other than that mutually communicated or applied for as aforesaid.

Each party shall have full power to incorporate in, or annex to, either its first or second statement, any portion of the reports of the Commissioners, or papers thereunto annexed, and other written documents laid before the Commission under the 5th article of the treaty of Ghent, or of the other evidence mutually communicated or applied for as above provided, which it may think fit.

#### ARTICLE IV

The map called Mitchell's map, by which the framers of the treaty of 1783 are acknowledged to have regulated their joint and official proceedings, and the map A, which has been agreed on by the contracting parties, as a delineation of the water-courses, and of the boundary lines in reference to the said water-courses, as contended for by each party respectively, and which has accordingly been signed by the above-named Plenipotentiaries, at the same time with this convention, shall be annexed to the statements of the contracting parties, and be the only maps that shall be considered as evidence, mutually acknowledged by the contracting parties, of the topography of the country.

It shall, however, be lawful for either party to annex to its respective first statement, for the purposes of general illustration, any of the maps, surveys, or topographical delineations, which were filed by the Commissioners under the 5th article of the treaty of Ghent, any engraved map heretofore published, and also a transcript of the above-mentioned map A, or of a section thereof, in which transcript each party may lay down the highlands, or other features of the country, as it shall think fit; the water courses and the boundary lines, as claimed by each party, remaining as laid down in the said map A.

But this transcript, as well as all the other maps, surveys, or topographical delineations, other than the map A, and Mitchell's map, intended to be thus annexed, by either party, to the respective statements, shall be communicated to the other party, in the same manner as aforesaid, within nine months after the exchange of the ratifications of this convention, and shall be subject to such objections and observations as the other contracting party may deem it expedient to make thereto, and shall annex to his first statement, either in the margin of such transcript, map or maps, or otherwise.

#### ARTICLE V

All the statements, papers, maps, and documents, above mentioned, and which shall have been mutually communicated as aforesaid, shall without any addition, subtraction, or alteration, whatsoever, be jointly and simultaneously delivered in to the arbitrating Sovereign or State within two years after the exchange of ratifications of this convention, unless the Arbiter should not, within that time, have consented to act as such; in which case all the said statements, papers, maps, and documents shall be laid before him within six months after the time when he shall have consented so to act. No other statements, papers, maps, or documents shall ever be laid before the Arbiter, except as hereinafter provided.

## ARTICLE VI

In order to facilitate the attainment of a just and sound decision on the part of the Arbiter, it is agreed that, in case the said Arbiter should desire further elucidation or evidence in regard to any specific point contained in any of the said statements submitted to him, the requisition for such elucidation or evidence shall be simultaneously made to both parties, who shall thereupon be permitted to bring further evidence, if required and to make, each, a written reply to the specific questions submitted by the said Arbiter, but no further; and such evidence and replies shall be immediately communicated by each party to the other.

And in case the Arbiter should find the topographical evidence, laid as aforesaid before him, insufficient for the purposes of a sound and just decision, he shall have the power of ordering additional surveys to be made of any portions of the disputed boundary line or territory, as he may think fit; which surveys shall be made at the joint expense of the contracting parties, and be considered as conclusive by them.

## ARTICLE VII

The decision of the Arbiter, when given, shall be taken as final and conclusive; and it shall be carried, without reserve, into immediate effect, by Commissioners appointed for that purpose by the contracting parties.

## ARTICLE VIII

This convention shall be ratified, and the ratifications shall be exchanged in nine months from the date hereof, or sooner if possible.

In witness whereof, we, the respective Plenipotentiaries, have signed the same, and have affixed thereto the seals of our arms.

Done at London the twenty-ninth day of September, in the year of our Lord one thousand eight hundred and twenty-seven.

[SEAL.]  
[SEAL.]  
[SEAL.]

ALBERT GALLATIN.  
CHA. GRANT.  
HENRY UNWIN ADDINGTON.

On January 10, 1831, the King of the Netherlands, who had been agreed upon as arbitrator, submitted an award, which, although not accepted by either Government, had some influence upon the final settlement of the boundary dispute, and for this reason the text of the award is here reprinted.

## AWARD OF THE KING OF THE NETHERLANDS (TRANSLATION)

"William, by the Grace of God, King of the Netherlands, Prince of Orange-Nassau, Grand Duke of Luxembourg, etc. etc.

"Having accepted the functions of Arbitrator conferred upon us by the note of the *Chargé d' Affaires* of the United States of America, and by that of the Ambassador Extraordinary and Plenipotentiary of Great Britain, to our Minister of Foreign Affairs, under date of the 12th January, 1829, agreeably to the 5th Article of the Treaty of Ghent, of the 24th December, 1814, and to the 1st Article of the Convention concluded between those Powers, at London, on the 29th of September, 1827, in the difference which has arisen between them on the subject of the boundaries of their respective possessions:

"Animated by a sincere desire to respond, by a scrupulous and impartial decision, to the confidence they have exhibited in us, and thus to give them a new proof of the high value we attach to it:

"Having, to that end, duly examined and maturely weighed the contents of the First Statement, as well as those of the Definitive Statement of the said difference, which the Envoy Extraordinary and Minister Plenipotentiary of the United States of America, and the Ambassador Extraordinary and Plenipotentiary of His Britannic Majesty, respectively delivered to us on the 1st of April of the year 1830, with all the documents thereto annexed in support of them:

"Desirous of fulfilling, at this time, the obligations we contracted in accepting the functions of Arbitrator in the aforesaid difference, by laying before the two High interested Parties the result of our examination, and our opinion on the three points into which, by common accord, the contestation is divided:

"Considering that the three points above mentioned ought to be decided according to the Treaties, Acts and Conventions concluded between the two Powers; that is to say, the



Treaty of Peace of 1783, the Treaty of Friendship, Commerce and Navigation of 1794, the Declaration relative to the river St. Croix of 1798, the Treaty of Peace signed at Ghent in 1814, the Convention of the 29th September, 1827; and Mitchell's Map and the Map A referred to in that Convention:

"WE DECLARE, THAT,

"As to the first point, to wit, the question, what is the place designated in the Treaties as the Northwest Angle of Nova Scotia, and what are the Highlands dividing the Rivers that empty themselves into the River St. Lawrence from those which fall into the Atlantic Ocean, along which is to be drawn the line of boundary from that angle to the Northwesternmost head of Connecticut River:

"CONSIDERING:

"That the High Interested Parties respectively claim that line of boundary at the south and at the north of the river St. John; and have each indicated upon the Map A the line which they claim:

"CONSIDERING:

"That, according to the examples given, the term Highlands applies not only to a hilly or elevated country, but also to land which, without being hilly, divides waters flowing in different directions; and therefore that the more or less hilly and elevated character of the country through which are drawn the two lines respectively claimed, at the north and at the south of the river St. John, cannot form the basis of a choice between them;

"That the text of the 2nd Article of the Treaty of 1783 recites, in part, the words previously used in the Proclamation of 1763 and in the Quebec Act of 1774 to indicate the southern boundaries of the Government of Quebec, from Lake Champlain, 'in forty-five degrees of North latitude, along the highlands which divide the rivers that empty themselves into the river St. Lawrence, from those which fall into the Sea, and also along the North Coast of the Bay des Chaleurs;'

"That in 1763, 1765, 1773, and 1782, it was established that Nova Scotia should be bounded at the north, as far as the western extremity of the Bay des Chaleurs, by the southern boundary of the Province of Quebec; that this delimitation is again found, with respect to the Province of Quebec, in the Commission of the Governor General of Quebec of 1786, wherein the language of the proclamation of 1763, and of the Quebec Act of 1774, has been used, as also in the Commissions of 1786, and others of subsequent dates of the Governors of New Brunswick, with respect to the last mentioned Province, as well as in a great number of maps anterior and posterior to the Treaty of 1783; and that the 1st Article of the said Treaty specifies, by name, the States whose independence is acknowledged;

"But that this specification does not imply the entire coincidence of the boundaries between the two Powers, as settled by the succeeding Article, with the ancient delimitation of the British Provinces, whose preservation is not mentioned in the Treaty of 1783, and which, owing to its continual changes, and the uncertainty which continued to exist respecting it, created from time to time differences between the Provincial authorities;

"That there results from the line drawn under the Treaty of 1783, through the great Lakes, west of the river St. Lawrence, a departure from the ancient Provincial charters, with regard to those boundaries;

"That one would vainly attempt to explain why, if the intention was to retain the ancient Provincial boundary, Mitchell's Map, published in 1755, and consequently anterior to the Proclamation of 1763, and to the Quebec Act of 1774, was precisely the one used in the negotiation of 1783;

"That Great Britain proposed, at first, the river Piscataqua as the eastern boundary of the United States; and did not subsequently agree to the proposition to cause the boundary of Maine, or Massachusetts Bay, to be ascertained at a later period;

"That the Treaty of Ghent stipulated for a new examination on the spot, which could not be applicable to an historical or administrative boundary;

"And that, therefore, the ancient delimitation of the British Provinces, does not, either, afford the basis of a decision;

"That the longitude of the northwest angle of Nova Scotia, which ought to coincide with that of the source of the St. Croix river, was determined only by the Declaration of 1798, which indicated that river;

"That the Treaty of Friendship, Commerce, and Navigation of 1794, alludes to the doubt which had arisen with respect to the river St. Croix; and that the first instructions of the Congress, at the time of the negotiations, which resulted in the Treaty of 1783, locate the said angle at the source of the river St. John.

"That the latitude of that angle is upon the banks of the St. Lawrence, according to Mitchell's Map, which is acknowledged to have regulated the joint and official labors of the negotiators of the Treaty of 1783; whereas, agreeably to the delimitation of the Government of Quebec, it is to be looked for in the highlands which divide the rivers that empty themselves into the river St. Lawrence, from those which fall into the sea;

"That the nature of the ground east of the before mentioned angle not having been indicated by the Treaty of 1783, no argument can be drawn from it to locate that angle at one place in preference to another;

"That, moreover, if it were deemed proper to place it nearer the source of the River St. Croix, and look for it, for instance, at Mars Hill, it would be so much the more possible that the boundary of New Brunswick, drawn thence northeastwardly, would give to that province several Northwest angles, situated farther north and east, according to their greater remoteness from Mars Hill since the number of degrees of the angle referred to in the Treaty is not mentioned;

"That, consequently, the Northwest angle of Nova Scotia, here alluded to, having been unknown in 1783, and the Treaty of Ghent having again declared it to be unascertained, the mention of that historical angle in the Treaty of 1783 is to be considered as an evasion of the question (*petition de principe*), affording no basis for a decision; whereas, if considered as a topographical point, having reference to the definition, viz: 'that angle which is formed by a line drawn due north from the source of the St. Croix River to the Highlands,' it forms simply the extremity of the line 'along the said Highlands, which divide those rivers that empty themselves into the river St. Lawrence, from those which fall into the Atlantic Ocean,' an extremity which a reference to the Northwest angle of Nova Scotia does not contribute to ascertain, and which still remaining itself to be found, can not lead to the discovery of the line which it is to terminate;

"Lastly, that the arguments deduced from the rights of sovereignty exercised over the Fief of Madawaska, and over the Madawaska Settlement—even admitting that such exercise were sufficiently proved—cannot decide the question, for the reason that those two settlements embrace only a portion of the territory in dispute, and that the High Interested Parties have acknowledged the country lying between the lines respectively claimed by them, as constituting a subject of contestation, and that therefore possession cannot be considered as derogating from the right; and that if the ancient delimitation of the Provinces adduced in support of the line claimed at the north of the river St. John, and especially that which is mentioned in the Proclamation of 1763, and in the Quebec Act of 1774, be set aside, there would be no ground for admitting, in support of the line claimed at the south of the river St. John, the arguments tending to prove that that part of the territory in dispute belongs to Canada or to New Brunswick:

#### "CONSIDERING:

"That the question, divested of the inconclusive arguments drawn from the nature, more or less hilly, of the ground,—from the ancient delimitation of the Provinces,—from the Northwest angle of Nova Scotia, and from the actual possession, resolves itself, in the end, into these questions: What is the line drawn due north from the source of the river St. Croix, and what is the ground, no matter whether hilly and elevated or not, which, from that line to the Northwesternmost head of Connecticut river, divides the rivers that empty themselves into the river St. Lawrence from those which fall into the Atlantic Ocean; That the High Interested Parties only agree upon the fact that the boundary sought for must be determined by such a line, and by such ground; that they further agree, in view of the Declaration of 1798, as to the answer to be given to the first question, with the exception of the latitude at which the line drawn due north from the source of the St. Croix river is to terminate; that said latitude coincides with the extremity of the ground which, from that line to the Northwesternmost source of Connecticut river, divides the rivers which empty themselves into the river St. Lawrence from those which fall into the Atlantic Ocean; and that, therefore, it only remains to ascertain that ground;

"That on entering upon this operation, it is discovered, on the one hand:

"First, that if, by adopting the line claimed to the north of the river St. John, Great Britain cannot be considered as obtaining a territory of less value than if she had accepted in 1783 the river St. John as her frontier, yet, that, taking into view the situation of the country lying between the rivers St. John and St. Croix in the vicinity of the sea, and the possession of both banks of the river St. John in the lower part of its course, this compensation would nevertheless be destroyed by the interruption of the communication between Lower Canada and New Brunswick, especially between Quebec and Fredericton; and that one would vainly seek to discover what motive could have determined the Court of London to consent to such an interruption:

"That if, in the second place, in contradistinction to the rivers that empty themselves into the river St. Lawrence, it had been possible, agreeably to the language ordinarily used in geography, to comprehend the rivers falling into the Bays of Fundy and des Chaleurs with those



emptying themselves directly into the Atlantic Ocean, in the generic denomination of rivers falling into the Atlantic Ocean, yet it would be hazardous to include in that category the rivers St. John and Restigouche, which the line claimed at the north of the river St. John divides immediately from rivers emptying themselves into the river St. Lawrence, not with other rivers falling into the Atlantic Ocean, but alone; and thus to apply, in interpreting the delimitation established by a Treaty, where each word must have a meaning, to two strictly special cases, and where no mention is made of the genus, a generic expression which would ascribe to them a broader meaning, or which, if extended to the Schoodiac Lakes, the Penobscot and the Kennebec, which empty themselves directly into the Atlantic Ocean, would establish the principle that the Treaty of 1783 meant highlands which divide, as well mediately as immediately, the rivers that empty themselves into the river St. Lawrence from those which fall into the Atlantic Ocean—a principle equally realized by both lines:

“Thirdly: That the line claimed at the north of the river St. John does not divide, immediately, the rivers that empty themselves into the river St. Lawrence from the rivers St. John and Restigouche, but only Rivers that empty themselves into the St. John and Restigouche, with the exception of the last part of said line, near the sources of the river St. John; and that hence in order to reach the Atlantic Ocean, the rivers divided by that line from those that empty themselves into the river St. Lawrence, each need two intermediate channels, to wit: some, the river St. John and the Bay of Fundy; and the others, the river Restigouche and the Bay des Chaleurs:

“And on the other hand,

“That it cannot be sufficiently explained how, if the high Contracting Parties intended in 1783 to establish the boundary at the south of the river St. John, that river, to which the territory in dispute is in a great measure indebted for its distinctive character, has been neutralized and set aside:

“That the verb ‘divide’ appears to require the contiguity of the objects to be ‘divided:’

“That the said boundary forms at its western extremity, only, the immediate separation between the river Mettjarmette, and the Northwesternmost head of the Penobscot, and divides, mediately, only the rivers that empty themselves into the river St. Lawrence from the waters of the Kennebec, Penobscot, and Schoodiac Lakes; while the boundary claimed at the north of the river St. John divides, immediately, the waters of the rivers Restigouche and St. John, and mediately the Schoodiac Lakes and the waters of the rivers Penobscot and Kennebec, from the rivers that empty themselves into the river St. Lawrence, to wit: the rivers Beaver, Metis, Rimousky, Trois Pistoles, Green, Du Loup, Kamouraska, Ouelle, Bras St. Nicholas, Du Sud, La Famine and Chaudière:

“That even setting aside the rivers Restigouche and St. John, for the reason that they could not be considered as falling into the Atlantic Ocean, the northern line would still be as near to the Schoodiac Lakes, and to the waters of the Penobscot and of the Kennebec, as the southern line would be to the rivers Beaver, Metis, Rimousky, and others that empty themselves into the river St. Lawrence; and would, as well as the other, form a mediate separation between these and the rivers falling into the Atlantic Ocean:

“That the prior intersection of the southern boundary by a line drawn due north from the source of the St. Croix river, could only secure to it an accessory advantage over the other, in case both the one and the other boundary should combine, in the same degree, the qualities required by the Treaties:

“And that the fate assigned by that of 1783 to the Connecticut, and even to the St. Lawrence, precludes the supposition that the two Powers could have intended to surrender the whole course of each river from its source to its mouth to the share of either the one or the other:

“CONSIDERING:

“That, in view of what precedes, the arguments adduced on either side, and the documents exhibited in support of them, cannot be considered as sufficiently preponderating to determine a preference in favor of either one of the two lines respectively claimed by the High Interested Parties, as the boundaries of their possessions, from the source of the river St. Croix to the Northwesternmost head of the Connecticut river; and that the nature of the difference and the vague and not sufficiently determinate stipulations of the Treaty of 1783, do not permit us to award either of those lines to one of the said Parties, without violating the principles of law and equity with regard to the other:

“CONSIDERING:

“That, as has already been said, the question resolves itself into the selection of ground dividing the rivers that empty themselves into the river St. Lawrence from those that fall into the Atlantic Ocean; that the High Interested Parties are agreed with regard to the course of the streams delineated by common accord on the Map A and affording the only basis of a decision;



"And that, therefore, the circumstances upon which such decision depends could not be further elucidated by means of fresh topographical investigation, nor by the production of additional documents:

"WE ARE OF OPINION:

"That it will be suitable (*il conviendra*) to adopt, as the boundary of the two States, a line drawn due north from the source of the river St. Croix to the point where it intersects the middle of the *thalweg* of the river St. John; thence, the middle of the *thalweg* of that river, ascending it, to the point where the river St. Francis empties itself into the river St. John; thence, the middle of the *thalweg* of the river St. Francis, ascending it, to the source of its southwesternmost branch, which source we indicate on the Map A by the letter X, authenticated by the signature of our Minister of Foreign Affairs; thence, a line drawn due west, to the point where it unites with the line claimed by the United States of America, and delineated on the Map A; thence, by said line to the point at which, according to said map, it coincides with that claimed by Great Britain; and thence, the line traced on the map by the two Powers, to the northwesternmost source of Connecticut River.

"As regards the second point, to wit: the question, which is the Northwesternmost head of Connecticut River:

"CONSIDERING:

"That, in order to solve this question, it is necessary to choose between Connecticut-lake River, Perry's Stream, Indian Stream and Hall's Stream:

"CONSIDERING:

"That, according to the usage adopted in geography, the source and the bed of a river are denoted by the name of the river which is attached to such source and to such bed, and by their greater relative importance, as compared to that of other waters communicating with said river:

"CONSIDERING:

"That an official letter of 1772 already mentions the name of Hall's Brook, and that, in an official letter of subsequent date, in the same year, Hall's Brook is represented as a small river falling into the Connecticut;

"That the river in which Connecticut Lake is situated appears more considerable than either Hall's, Indian or Perry's Stream; that Connecticut Lake and the two Lakes situated northward of it, seem to assign to it a greater volume of water than to the other three rivers; and that by admitting it to be the bed of the Connecticut, the course of that river is extended farther than it would be if a preference were given to either of the other three rivers;

"Lastly, that the Map A having been recognized by the Convention of 1827 as indicating the courses of streams, the authority of that map would likewise seem to extend to their appellation, since in case of dispute such name of river or lake, respecting which the parties were not agreed, might have been omitted; that said map mentions Connecticut Lake, and that the name of Connecticut Lake implies the applicability of the name of Connecticut to the river which flows through the said lake:

"WE ARE OF OPINION:

"That the stream situated farthest to the northwest among those which fall into the northernmost of the three Lakes, the last of which bears the name of Connecticut Lake, must be considered as the northwesternmost head of Connecticut river.

"And as to the third point, to wit: the question, What is the boundary to be traced from the river Connecticut, along the parallel of the 45th degree of north latitude, to the river St. Lawrence, named in the Treaties Iroquois or Cataraquy:

"CONSIDERING:

"That the High Interested Parties differ in opinion as to the question—Whether the Treaties require a fresh survey of the whole line of boundary from the river Connecticut to the river St. Lawrence, named in the Treaties Iroquois or Cataraquy, or simply the completion of the ancient provincial surveys:

"CONSIDERING:

"That the fifth article of the Treaty of Ghent of 1814 does not stipulate that such portion of the boundaries as may not have hitherto been surveyed, shall be surveyed; but declares that the boundaries have not been, and establishes that they shall be, surveyed:

"That, in effect, such survey ought, in the relations between the two Powers, to be considered as not having been made from the Connecticut to the river St. Lawrence, named in the Treaties Iroquois or Cataraquy, since the ancient survey was found to be incorrect, and had been ordered, not by a common accord of the two Powers, but by the ancient provincial authorities:

"That in determining the latitude of places it is customary to follow the principle of the observed latitude;

"And that the Government of the United States of America has erected certain fortifications at the place called Rouse's Point, under the impression that the ground formed part of their territory—an impression sufficiently authorized by the circumstance that the line had, until then, been reputed to correspond with the 45th degree of north latitude:

"WE ARE OF OPINION:

"That it will be suitable to proceed to fresh operations to measure the observed latitude in order to mark out the boundary from the river Connecticut along the parallel of the 45th degree of north latitude to the river St. Lawrence, named in the Treaties Iroquois or Cataraquy, in such manner however that, in all cases, at the place called Rouse's Point, the territory of the United States of America shall extend to the fort erected at that place, and shall include said fort and its Kilometrical radius (*rayon Kilometrique*.)

"Thus done and given under our Royal Seal, at the Hague, this tenth day of January, in the year of our Lord one thousand eight hundred and thirty-one, and of our Reign the eighteenth.

"WILLIAM.

"VERSTOLK VAN SOELEN,

"*The Minister of Foreign Affairs.*"

The disputes which followed, the attempts to adjust the differences of the two countries, the negotiations, and, finally, the conclusion of the convention of 1842 (the Webster-Ashburton treaty) are discussed at some length in Appendix I of this report, and in greater detail in Moore's History and Digest of International Arbitrations, Volume I, pages 138-157.

The following is the text of the Webster-Ashburton treaty:

#### WEBSTER-ASHBURTON TREATY

(Concluded August 9, 1842; ratifications exchanged October 13, 1842)

Whereas certain portions of the line of boundary between the United States of America and the British dominions of North America, described in the second article of the treaty of peace of 1783, have not yet been ascertained and determined, notwithstanding the repeated attempts which have been heretofore made for that purpose; and whereas it is now thought to be for the interest of both parties, that, avoiding further discussion of their respective rights, arising in this respect under the said treaty, they should agree on a conventional line in said portions of the said boundary, such as may be convenient to both parties, with such equivalents and compensations as are deemed just and reasonable, and whereas, by the treaty concluded at Ghent on the 24th day of December, 1814, between the United States and His Britannic Majesty, an article was agreed to and inserted of the following tenor, vizt: "Art. 10. Whereas the traffic in slaves is irreconcilable with the principles of humanity and justice; and whereas both His Majesty and the United States are desirous of continuing their efforts to promote its entire abolition, it is hereby agreed that both the contracting parties shall use their best endeavors to accomplish so desirable an object;" and whereas, notwithstanding the laws which have at various times been passed by the two Governments, and the efforts made to suppress it, that criminal traffic is still prosecuted and carried on; and whereas the United States of America and Her Majesty the Queen of the United Kingdom of Great Britain and Ireland are determined that, so far as may be in their power, it shall be effectually abolished; and whereas it is found expedient, for the better administration of justice and the prevention of crime within the territories and jurisdiction of the two parties respectively, that persons committing the crimes hereinafter enumerated, and being fugitives from justice, should, under certain circumstances, be reciprocally delivered up: The United States of America and Her Britannic Majesty, having resolved to treat on these several subjects, have for that purpose appointed their respective Plenipotentiaries to negotiate and conclude a treaty, that is to say:

The President of the United States has on his part, furnished with full powers Daniel Webster, Secretary of State of the United States, and Her Majesty the Queen of the United Kingdom of Great Britain and Ireland has, on Her part, appointed the Right Honorable Alexander Lord Ashburton, a peer of the said United Kingdom, a member of Her Majesty's Most Honorable Privy Council, and Her Majesty's Minister Plenipotentiary on a special mission to the United States;



Who, after a reciprocal communication of their respective full powers, have agreed to and signed the following articles:

## ARTICLE I

It is hereby agreed and declared that the line of boundary shall be as follows: Beginning at the monument at the source of the river St. Croix as designated and agreed to by the Commissioners under the fifth article of the treaty of 1794, between the Governments of the United States and Great Britain; thence, north, following the exploring line run and marked by the surveyors of the two Governments in the years 1817 and 1818, under the fifth article of the treaty of Ghent, to its intersection with the river St. John, and to the middle of the channel thereof; thence, up the middle of the main channel of the said river St. John to the mouth of the river St. Francis; thence, up the middle of the channel of the said river St. Francis, and of the lakes through which it flows, to the outlet of the Lake Pohenagamook; thence, south-westerly, in a straight line, to a point on the northwest branch of the river St. John, which point shall be ten miles distant from the main branch of the St. John, in a straight line, and in the nearest direction; but if the said point shall be found to be less than seven miles from the nearest point of the summit or crest of the highlands that divide those rivers which empty themselves into the river Saint Lawrence from those which fall into the river Saint John, then the said point shall be made to recede down the said northwest branch of the river St. John, to a point seven miles in a straight line from the said summit or crest; thence, in a straight line, in a course about south, eight degrees west, to the point where the parallel of latitude of  $46^{\circ} 25'$  north intersects the southwest branch of the St. John's; thence, southerly, by the said branch, to the source thereof in the highlands at the Metjarmette portage; thence, down along the said highlands which divide the waters which empty themselves into the river Saint Lawrence from those which fall into the Atlantic Ocean, to the head of Hall's Stream; thence, down the middle of said stream, till the line thus run intersects the old line of boundary surveyed and marked by Valentine and Collins, previously to the year 1774, as the 45th degree of north latitude, and which has been known and understood to be the line of actual division between the States of New York and Vermont on one side, and the British province of Canada on the other; and from said point of intersection, west, along the said dividing line, as heretofore known and understood, to the Iroquois or St. Lawrence River.

## ARTICLE III

In order to promote the interests and encourage the industry of all the inhabitants of the countries watered by the river St. John and its tributaries, whether living within the State of Maine or the province of New Brunswick, it is agreed that, where, by the provisions of the present treaty, the river St. John is declared to be the line of boundary, the navigation of the said river shall be free and open to both parties, and shall in no way be obstructed by either; that all the produce of the forest, in logs, lumber, timber, boards, staves, or shingles, or of agriculture, not being manufactured, grown on any of those parts of the State of Maine watered by the river St. John, or by its tributaries, of which fact reasonable evidence shall, if required, be produced, shall have free access into and through the said river and its said tributaries, having their source within the State of Maine, to and from the sea-port at the mouth of the said river St. John's, and to and round the falls of the said river, either by boats, rafts, or other conveyance; that when within the province of New Brunswick, the said produce shall be dealt with as if it were the produce of the said province; that, in like manner, the inhabitants of the territory of the upper St. John, determined by this treaty to belong to Her Britannic Majesty, shall have free access to and through the river, for their produce, in those parts where the said river runs wholly through the State of Maine; Provided, always, that this agreement shall give no right to either party to interfere with any regulations not inconsistent with the terms of this treaty which the governments, respectively, of Maine or of New Brunswick may make respecting the navigation of the said river, where both banks thereof shall belong to the same party.

## ARTICLE VI

It is furthermore understood and agreed that, for the purpose of running and tracing those parts of the line between the source of the St. Croix and the St. Lawrence River, which will require to be run and ascertained, and for marking the residue of said line by proper monuments on the land, two Commissioners shall be appointed, one by the President of the United States, by and with the advice and consent of the Senate thereof, and one by Her Britannic Majesty; and the said Commissioners shall meet at Bangor, in the State of Maine, on the first day of May next, or as soon thereafter as may be, and shall proceed to mark the line above described from



the source of the St. Croix to the river St. John; and shall trace on proper maps the dividing-line along said river and along the river St. Francis to the outlet of the Lake Pohenagamook; and from the outlet of the said lake they shall ascertain, fix, and mark, by proper and durable monuments on the land, the line described in the first article of this treaty; and the said Commissioners shall make to each of their respective Governments, a joint report or declaration, under their hands and seals, designating such line of boundary, and shall accompany such report or declaration with maps, certified by them to be true maps of the new boundary.

## ARTICLE XII

The present treaty shall be duly ratified, and the mutual exchange of ratifications shall take place in London, within six months from the date hereof, or earlier if possible.

In faith whereof we, the respective Plenipotentiaries, have signed this treaty and have hereunto affixed our seals.

Done in duplicate at Washington, the ninth day of August, anno Domini one thousand eight hundred and forty-two.

[SEAL.]

DANL. WEBSTER.

[SEAL.]

ASHBURTON.

The work of surveying and marking the boundary from the source of the St. Croix River to the St. Lawrence River under the treaty of 1842 is treated in detail in Appendix III. The text of the joint report of the commissioners appointed to carry out the treaty provisions which apply to the boundary demarcation is here reprinted.

## REPORT OF THE JOINT COMMISSION OF BOUNDARY APPOINTED UNDER THE TREATY OF WASHINGTON OF AUGUST 9, 1842

The undersigned, commissioners appointed under the treaty of Washington to trace and mark the boundary, as directed by that treaty, between the British possessions in North America and the United States—that is to say, James Bucknall Estcourt, lieutenant-colonel in the British army, appointed commissioner by Her Britannic Majesty, and Albert Smith, appointed commissioner by the President of the United States—having accomplished the duty assigned to them, do now, in accordance with the directions of the said treaty, submit the following report and accompanying maps, jointly signed, to their respective Governments.

In obedience to the terms of the treaty, the undersigned met at Bangor, in the State of Maine, on the 1st day of May, 1843, where they produced and verified the authority under which they each were respectively to act. They then adjourned, because the weather was not sufficiently open for taking the field, to the 1st of the following month (June), and agreed to meet again at that time at Houlton.

Accordingly, they did meet at that place, and began their operations.

It may be desirable to state at the outset that for the sake of convenience the whole line of boundary marked by the undersigned has been divided in the mention made of the different portions into the following grand divisions, viz:

“North Line,” from the source of the St. Croix to the intersection of the St. John.

“River St. John,” from the intersection of the North Line to the mouth of the St. Francis.

“River St. Francis,” from its mouth to the outlet of Lake Pohenagamook.

“Southwest Line,” from the outlet of Lake Pohenagamook to the Northwest Branch of the St. John.

“South Line,” from the Northwest Branch to the parallel of latitude  $46^{\circ} 25'$  on the Southwest Branch.

“Southwest Branch,” from the parallel  $46^{\circ} 25'$  to its source.

“Highlands,” from the source of the Southwest Branch of the St. John to the source of Halls Stream.

“Halls Stream,” from its source to the intersection of the line of Valentine and Collins.

“West Line,” from Halls Stream to the St. Lawrence near St. Regis, along the line of Valentine and Collins.

To return to the narration of operations:

The exploring line of Colonel Bouchette and Mr. Johnson, as directed by the treaty, was traced from the monument at the source of the St. Croix to the intersection of the St. John.

The monument found at the source of the St. Croix, as described in the report of Colonel Bouchette and Mr. Johnson, and the course of their exploring line, was traced by blazes or marks upon the trees.

An old line, cut out by the assistant surveyors of Colonel Bouchette and Mr. Johnson, was also found, which terminated about half a mile north of the South Branch of the Meduxnikeag, where, by records to which the undersigned referred, they ascertained that it had been abandoned because of its deviation from the exploring line of Colonel Bouchette and Mr. Johnson.

After the exploration and re-marking of the North Line it was cut out 30 feet wide. The same was afterwards done in all parts where the boundary passed through woodland. After thus opening the North Line it was surveyed, and iron posts were erected at intervals to mark it.

The general bearing of the line was rather to the west of the meridian of the monument at the source of the St. Croix. The precise line laid down by the undersigned was determined by successive courses, of which each was made to be as long as was convenient, provided it did not pass out of the opening of 30 feet.

At each angle of deflection an iron monument was erected, and placed anglewise with the line. Other monuments were erected at the crossing of roads, rivers, and at every mile, commencing from the source of the St. Croix. Those which were not intended to mark angles of deflection were placed square with the line.

At the intersection of the St. John by the North Line the river is deep, and broad. The boundary runs up the middle of the channel of the river, as indicated by the maps, dividing the islands as follows:

No. 1.	Ryan's Island	United States.
No. 2.	King's Island	United States.
No. 3.	Les Trois Isles	United States.
No. 4.	La Septieme Isle	United States.
No. 5.	Quissibis	Great Britain.
No. 6.	La Grand Isle	United States.
No. 7.	Thibideau's Islands	United States.
No. 8.	Madawaska Islands	Great Britain.
No. 9.	Joseph Michaud's three islands	United States.
No. 10.	Pine Island	Great Britain.
No. 11.	{ Baker's Turtle Dagle's Fourth Fifth } Islands	Great Britain.
No. 12.	Kennedy's Island	Great Britain.
No. 13.	{ Crock's Cranberry Gooseberry } Islands	Great Britain.
No. 14.	Savage's Island	United States.
No. 15.	Wheelock's Island	United States.
No. 16.	Caton's Island	United States.
No. 17.	Honeywell's Island	United States.
No. 18.	Savage and Johnson's Island	United States.
No. 19.	Grew's Island	United States.
No. 20.	Kendall's Island	Great Britain.

The islands were distributed to Great Britain or to the United States, as they were found to be on the right or left of the deep channel. There was but one doubtful case, La Septieme Isle, and that was apportioned to the United States because the majority of the owners were ascertained to reside on the United States side of the river.

Monuments were erected upon the islands, marking them for Great Britain or the United States, as the case may have been.

After leaving the St. John the boundary enters the St. Francis, dividing the islands at the mouth of that river in the manner shown on the maps. It then runs up the St. Francis, through the middle of the lakes upon it, to the outlet of Lake Pohenagamook, the third large lake from the mouth of the river. At the outlet a large monument has been erected.

In order to determine the point on the Northwest Branch to which the treaty directed that a straight line should be run from the outlet of Lake Pohenagamook, a survey of that stream was made, and also of the main St. John in the neighborhood of the mouth of the Northwest Branch, and a line was cut between the St. John and the point on the Northwest Branch, ascertained by



the survey to be 10 miles in the nearest direction from it, and the distance was afterwards verified by chaining.

It was ascertained also, in accordance with the provisions of the treaty, by a triangulation of the country toward the highlands dividing the waters of the St. Lawrence and of the St. John, that more than 7 miles intervened between the point selected on the Northwest Branch and the crest of the dividing ridge. A large iron monument was afterwards erected on the point thus selected, and the space around was cleared and sown with grass seed. It is a short distance below the outlet of Lake Ishaganalshegeck.

The outlet of Lake Pohenagamook and the point on the Northwest Branch designated by the treaty having been thus ascertained and marked, in the spring of 1844 a straight line was run between them. Along that line, which passes entirely through forest, monuments were erected at every mile, at the crossings of the principal streams and rivers, and at the tops of those hills where a transit instrument had been set up to test the straightness of the line.

As soon as the parallel of latitude  $46^{\circ}25'$  had been determined on the Southwest Branch, in the early part of the summer of 1844, a straight line was drawn from the boundary point on the Northwest Branch to a large monument erected on the left bank of the Southwest Branch where it is intersected by the parallel of latitude  $46^{\circ}25'$ . The line so drawn crosses the Southwest Branch once before it reaches the parallel of latitude  $46^{\circ}25'$ , and at about a half mile distance from that parallel. There also a large monument has been set up on the left bank.

From the intersection of the parallel  $46^{\circ}25'$  the boundary ascends the Southwest Branch, passes through a lake near its head, and so up a small stream which falls into the lake from the west to the source of that stream, which has been selected as the source of the Southwest Branch.

On the Southwest Branch there are two principal forks, at each of which two monuments have been erected, one on each bank of the river immediately above the forks and upon the branch established as the boundary. The maps point out their positions. At the mouth of the small stream selected as the source of the Southwest Branch a monument has been erected upon a delta formed by two small outlets. Above those outlets three other monuments have been placed at intervals upon the same stream.

Upon the crest of the dividing ridge, very close to the source of the Southwest Branch, a large monument has been erected. It is the first point in the Highlands,<sup>3</sup> and from it the boundary runs along the crest in a southerly direction, passing near to the southeastern shore of the Portage Lake, and so on to a large monument erected on a small eminence on the east side of the Kennebec road. Thence it passes through a dwelling house called Tachereau's, which was standing there at the time the line was run; so, by a tortuous course, it runs to the top of Sandy Stream Mountain; thence, inclining to the southwest, it runs over Hog Back the First, as shown on the maps; thence toward Hog Back the Second, which it leaves on the north side. Further on, at the head of Leech Lake, there is a stream which divides its waters and flows both into Canada and into the United States. The boundary has been made to run up that stream a short distance from the fork where the waters divide to a second fork; thence between the streams which unite to form that fork, and then to ascend again the dividing ridge. A monument has been erected at the fork first mentioned, where the waters divide.

As the boundary approaches the valley of Spider River it bends to the southeast, and, by a wide circuit over high and steep hills, it turns the head of Spider River; thence it bends to the northwest until it approaches within about 4 miles of Lake Megantic; thence it turns again south, having the valley of Arnolds River on the right and of Dead River on the left. It leaves Gosford Mountain in Canada, threads its way over very high ground between the head of Arnolds River and the tributaries of the Magalloway; inclines then to the north, so to the west, over very rocky, mountainous, and difficult country, leaving Gipps Peak in the United States, and turns by a sharp angle at Saddle Back to the south. After that it again inclines to the west, and then to the south, and again to the west, and passes the head of the Connecticut. About 3 miles and a half east of the head of the Connecticut there is a division of waters similar to that described near Leech Lake. The boundary runs down a stream from near its source to the fork where it divides, and then again follows the dividing ridge. The spot is noted on the map.

After the boundary has passed the head of the Connecticut it runs to the northwest, descending into very low, swampy ground between the heads of Indian Stream and the tributaries of the St. Francis. Thus it passes on, bending again to the south of west, over a high hill, to the source of Halls Stream.

Iron monuments have been erected at intervals along the Highlands from the source of the Southwest Branch of the St. John to the source of Halls Stream, the position of each of which is shown upon the maps.

<sup>3</sup>The Highlands is considered by the present commission as beginning at Little St. John Lake at monument 314.



From the source of Halls Stream the boundary descends that river, dividing the islands, which are, however, merely unimportant alluvial deposits, in the manner indicated by the maps until it reaches the intersection of that stream by the line formerly run by Valentine and Collins as the forty-fifth degree of north latitude.

At that point a large monument has been erected on the right and a small one on the left bank of the stream. Monuments have also been erected along the bank of this stream, as indicated on the maps.


The line of Valentine and Collins was explored and found by the blazes still remaining in the original forest.

Upon cutting into those blazes it was seen that deep seated in the tree there was a scar, the surface of the original blaze, slightly decayed, and upon counting the rings (which indicate each year's growth of the tree) it was found that the blazes dated back to 1772, 1773, and 1774. The line of Valentine and Collins was run in 1771, 1772, 1773, and 1774. The coincidence of the dates of the blazes with those of the above line, confirmed by the testimony of the people of the country, satisfied the undersigned that the line they had found was that mentioned in the treaty. Along this portion of the boundary, which is known as the forty-fifth degree of Valentine and Collins, and which extends from Halls Stream to St. Regis, there are several interruptions to the blazes in those parts where clearings have been made, and there the authentic marks of the precise situation of the old line have been lost. In those cases the undersigned have drawn the boundary line straight from the original blazes on the one side of a clearing to the original blazes on the other side of the same clearing.

It cannot be positively stated that the line as it has been traced through those clearings precisely coincides with the old line, but the undersigned believe that it does not differ materially from it; nor have they had the means of determining a nearer or a surer approximation.

Along this line, at every point of deflection, an iron monument has been erected; also at the crossing of rivers, lakes, and roads. Those which mark deflections are placed, as on the "North Line," anglewise with the line; all the others are placed square with it. The maps show the position of each.

On the eastern shore of Lake Memphremagog an astronomical station was established, and on a large flat rock of granite, which happened to lie between the astronomical station and the boundary, was cut the following inscription:

BRITISH BOUNDARY	CAPT. ROBINSON	COMMISSION
	AST. STATION	
	422 FEET NORTH	
	— MERIDIAN —  — LINE —	
	BOUNDARY LINE	
	595 FEET SOUTH	
	AUGUST 1845	

A mark was cut upon the stone, as indicated by the dot upon the meridian line above, from which these measurements were made.

At Rouses Point a monument of wrought stone was set up at the intersection of the boundary by the meridian of the transit instrument used there by Major Graham, and an inscription was cut upon it stating the latitude and longitude, the names of the observer and his assistant, the names of the commissioners, and the territories divided.

To mark the position of the instruments used at the following astronomical stations along the west line, two monuments within a few feet of each other have been erected at each station, and they have been placed on the boundary line due north or south of the instrument, as the case may have been.

The stations are: Lake Memphremagog, Richford, John McCoy's, Trout River.

The boundary along the West Line, though very far from being a straight line, is generally about half a mile north of the true parallel of latitude  $45^{\circ}$  from Halls Stream to Rouses Point. At about 28 miles west of Rouses Point it, however, crosses that parallel to the south until it reaches Chateaugay River, where it bends northward, and crossing the parallel again about 4 miles east of St. Regis, it strikes the St. Lawrence 151 feet north of  $45^{\circ}$ . At that point a large monument has been erected on the bank of the St. Lawrence. Two large monuments have also been erected, one on either side of the river Richelieu near Rouses Point.

No marks of the old line were to be found about St. Regis. It was therefore agreed to run a line due west from the last blaze which should be found in the woods on the east side of St. Regis. That blaze occurred about 1 mile east of the St. Regis River.

The maps, which exhibit the boundary on a scale of 4 inches to 1 statute mile, consist of 62 consecutive sheets of antiquarian paper as constructed by the British and of 61 as constructed

by the American commission. A general map has also been constructed on a scale of 8 miles to 1 inch by the British and of 10 miles to 1 inch by the American commission, upon which the before-mentioned sheets are represented.

The following portions of the boundary have been laid down by the British commission, on detached maps, on a scale of 12 inches to 1 mile, which have been signed by both commissioners:

Grand Falls of the St. John, including the intersection of that river by the North Line; islands of the St. John; the outlet of Lake Pohenagamook; the turning point of the boundary on the Northwest Branch of the St. John; the intersection of the Southwest Branch by the parallel of latitude  $46^{\circ} 25'$ ; the source of the Southwest Branch; the source of Halls Stream; the intersection of Halls Stream by the West Line; Rouses Point; St. Regis; Derby.

But similar maps have not been prepared by the American commission, because during the interval between the finishing of the maps of the British commission and those of the American it was thought that the maps already constructed upon a scale of 4 inches to 1 mile represented the boundary with sufficient clearness and accuracy.

The astronomical observations were begun at the Grand Falls early in June, 1843, and were carried up the St. John River to the Northwest Branch by a chain of stations, which, together with the results obtained, are tabulated in the appendix accompanying this report.

From the valley of the St. John an astronomical connection was made with Quebec, and thence to Montreal, and so to Rouses Point. From Rouses Point a connection was obtained with Cambridge University, near Boston.

The astronomical stations on the West Line were: Intersection of Halls Stream by the West Line, Lake Memphremagog, Richford, Rouses Point, John McCoy's, Trout River, St. Regis.

Latitude was also obtained at an astronomical station established for the purpose at the head of the Connecticut.

Volumes containing the astronomical observations of both commissions are herewith submitted. From them it will be observed that the results for absolute longitude obtained by the British and American astronomers do not agree. It being a difference in no way affecting the survey of the boundary line, the undersigned do not feel called upon to attempt to reconcile it. The data upon which those results are based may be seen in the volumes of observations accompanying this report.

In the appendix will be found, in a tabular form, the following:

An abstract of the survey of the boundary along the North Line; an abstract of the survey of the boundary along the Southwest Line; an abstract of the survey of the boundary along the South Line; an abstract of the survey of the boundary along the Highlands; an abstract of the survey of the boundary along the West Line; the position of the monuments erected on the Southwest Branch of the St. John and on Halls Stream; the distribution of the islands of the St. John and the monuments on them; the guide lines and offsets run by each commission for the survey of the Highlands; the azimuths of verification for the survey of the Highlands; the latitudes and longitudes obtained from the astronomical observations; the comparative longitudes obtained, and the methods used for the purpose.

Upon comparing the maps of the two commissions it will be seen that the American commission numbers two monuments more than the British. Those are to be found, one on the "Fourth Island," in the river St. John, and the other on the Highlands between the source of the Southwest Branch of the river St. John and the Kennebec road.

On the maps of the British commission representing the "West Line" the name of the town of "Derby" has been improperly placed north of the line instead of south of it. Also, on the same maps the direction of Salmon River, near the western extremity of the "West Line," has been incorrectly laid down from the boundary line northward. A direction has been given to it northeasterly instead of northwesterly.

The above two corrections the British commissioner is authorized to make on his maps after his return to England.

To avoid unnecessary delay in making their joint report, the undersigned have attached their signatures to the maps, although the lettering of some of the astronomical stations upon the maps of the American commission, as well as the alterations before mentioned in the maps of the British commission, are yet to be made; but in the maps of both the boundary has been laid down accurately and definitively, and the undersigned engage that it shall not be altered in any respect.

In conclusion the undersigned have the honor to report that the line of boundary described in the foregoing statement has been run, marked, and surveyed, and the accompanying maps faithfully constructed from that survey.



The undersigned take leave to add that the most perfect harmony has subsisted between the two commissions from first to last, and that no differences have arisen between the undersigned in the execution of the duties intrusted to them.

Signed and sealed in duplicate, at the city of Washington, this 28th day of June, A. D. 1847.

J. B. BUCKNALL ESTCOURT, (SEAL.)  
*Lieutenant-Colonel, Her Britannic Majesty's Commissioner.*  
 ALBERT SMITH (SEAL.)  
*United States Commissioner.*

NOTE.—The astronomical computations of the American commission not being completed, and it being unnecessary to defer the signing of the report on that account, the American commissioner engages to transmit them, with any other papers or tables not yet finished, as soon as they shall be so, to the British commissioner, through the American minister resident in London, to whom, upon delivery of the documents, the British commissioner will give a receipt, to be transmitted to the American commissioner.

J. B. BUCKNALL ESTCOURT,  
*Lieutenant-Colonel, H. B. M. Commissioner of Boundary.*  
 ALBERT SMITH,  
*United States Commissioner.*

#### CORRESPONDENCE RESULTING IN JOINT AND CONCURRENT ACTION REGARDING THE NEW YORK-QUEBEC AND VERMONT-QUEBEC BOUNDARIES

The correspondence between officials of the United States and Canada which resulted in the surveying and monumenting of the New York-Quebec and Vermont-Quebec boundaries and which eventually led up to the treaty of 1908, is here reproduced as furnishing the best means of understanding these negotiations.

STATE OF NEW YORK,  
 OFFICE OF THE STATE ENGINEER AND SURVEYOR,  
*Albany, March 2, 1900.*

Hon. E. DEVILLE,  
*Surveyor-General, Dept. of Interior,*  
*Topographic Survey Branch, Ottawa, Canada.*

From May 15 to June 30, 1899, we held some correspondence in relation to the examination of the monuments marking the boundary line between Canada and the state of New York. Our law stipulates that the State Engineer and Surveyor shall make an examination of the state boundary monuments once in three years. The time has arrived when the monuments between Canada and the state of New York, by the terms of our statute, should be examined.

It would please me very much if a representative of your government could take up this matter at the same time, so that each party will know of any defective monuments, and also know of any repairs to monuments that ought to be made.

I shall be very glad if you will take this subject up with the proper parties, and let me know at an early date what the possibilities are of co-operation by your department with ours in this examination.

EDWARD A. BOND,  
*State Engineer and Surveyor.*

#### EXTRACT FROM A REPORT OF THE COMMITTEE OF THE HONOURABLE THE PRIVY COUNCIL, APPROVED BY HIS EXCELLENCY ON THE 26TH OF MAY 1900

On a report dated 12th May, 1900, from the Acting Minister of the Interior, stating that he has received a communication from the State Engineer and Surveyor of the state of New York, stating that he is required under their law to make every three years an examination of the monuments marking the boundary of his state, and that the time for the periodical examination is at hand, and asking the co-operation of the Government of Canada so far as regards that portion of the state boundary which coincides with the boundary of the Dominion.

The Minister observes with regard to this proposition that it looks to a mere examination of the monuments, and not the repair or replacing of those broken or lost. This last should be out of the power of the state of New York or of Canada, either separately or jointly without an international agreement with the United States. Without power to replace, the examination



would appear to be of little service to the Dominion. For this reason, he (the Minister) is unable to recommend compliance with the State Engineer's request.

The Minister would, however, call attention to the general question of which this is a part, namely, the examination, and where necessary, the remarking of the whole of the southern boundary of Canada, wherever it has been surveyed by the various commissions appointed for that purpose. The portions of the boundary line which have been so marked are:

From the St. Croix to the St. Lawrence river, separating the provinces of New Brunswick and Quebec from the states of Maine, New Hampshire, Vermont and New York; this line was surveyed under the Ashburton Treaty of 1842, and marked with cast-iron monuments.

From the Lake of the Woods to the Rocky Mountains (49th parallel), separating Manitoba and the North-west Territories from the states of Minnesota, North Dakota and Montana; surveyed 1872 to 1874 and marked, in part with iron monuments, in part with earth or stone mounds.

From the Rocky Mountains to the Straits of Georgia (49th parallel) separating British Columbia from the states of Montana, Idaho and Washington; surveyed 1859 to 1861, and marked with mounds and iron posts.

As regards all these portions of the line many complaints have been made from time to time of the disappearance of monuments, and the consequent difficulty of determining the exact position of the boundary, while the British Columbia portion of the line was, in November, 1892, the subject of a formal request by the Lieutenant-Governor in Council for not only a re-establishment of lost posts, but also for an additional or supplementary survey, on the ground that the demarcation by the Commissioners was not sufficiently complete for modern requirements.

Again, the boundary line between Ontario and Minnesota, between Lake Superior and Lake of the Woods, has been designated by the Commissioners under the Treaty of Ghent, and by the Ashburton Treaty, by description and maps only, and the line (which in general follows the water communication) has never been marked where it crosses the portages.

The Minister submits that while this question was one of those before the Joint High Commission, it is yet essentially different from the other questions before that Commission, as it involves no cession of territory or relinquishment of rights on either side, but is a matter purely of business arrangement to the mutual advantage of both countries.

The Minister, therefore, recommends that Your Excellency be moved to inform Her Majesty's Government of the desire of the Government of Canada to join with the United States in an examination of their common boundary for the purpose of re-establishing lost monuments and of placing such supplementary monuments as may appear necessary to meet modern requirements.

The committee advise that Your Excellency be moved to transmit a certified copy of this Minute to the Right Honourable the Secretary of State for the Colonies.

All which is respectfully submitted for Your Excellency's approval.

JOHN J. MCGEE,  
*Clerk of the Privy Council*

STATE OF NEW YORK,  
OFFICE OF THE STATE ENGINEER AND SURVEYOR,  
*Albany, October 23, 1900.*

Hon. JOHN HAY,  
*Secretary of State, Washington, D. C.*

By the laws of the state of New York, it devolves on the State Engineer and Surveyor to once in three years examine all of the boundary monuments of the state, and report to the legislature their condition, and in connection with this work I have had the boundary monuments between Canada and the state of New York examined this past summer.

Of a total of 130 monuments I find only 37 in perfect condition. I find four are missing; 13 are broken, or have pieces broken off; 8 have fallen down; 5 have cracked; 39 have been heaved by action of the frost; 24 lean; that is, are not plumb. Of these, some of them are firm and others loose.

I would be glad if you would tell me what is best to be done to induce the Canada government to join, either with the government of the United States or with our state, to have these monuments replaced and put in proper and first-class condition.

If your department will take it up with the Canadians, I shall be very glad; but, if not, and they will assent to joining my department in adjusting this matter, we will gladly attend to it.

If I have not addressed the right department, I would appreciate it very much if you would have this letter referred to the proper parties.

EDWARD A. BOND,  
*State Engineer and Surveyor.*

DEPARTMENT OF STATE,  
*Washington, October 29, 1900.*

EDWARD A. BOND, Esquire,  
*State Engineer and Surveyor,  
Albany, New York.*

I have to acknowledge the receipt of your letter of the 23rd instant in relation to the condition of the boundary monuments between the state of New York and the Dominion of Canada.

I have submitted the matter to the British ambassador, with a view to ascertain whether the Canadian government will be willing to join in the replacing and repair of the monuments. As a new survey is not involved but simply the repair of existing monuments, it would not seem to require any new convention, but merely provision on both sides for the joint performance of the work.

JOHN HAY.

EXTRACT FROM A REPORT OF THE COMMITTEE OF THE HONOURABLE THE PRIVY COUNCIL, APPROVED  
BY HIS EXCELLENCY ON THE 5TH JANUARY, 1901

The Committee of the Privy Council have had under consideration a copy of a despatch hereto attached, dated 1st November, 1900, from Her Majesty's Ambassador at Washington, transmitting a copy of a note from the Secretary of State of the United States, inquiring whether the government of Canada is willing to join in having the monuments upon the boundary line between Canada and the state of New York put in proper and first-class condition.

The Minister of the Interior, to whom the matter was referred, observes that Your Excellency's government has already, by Minute dated 26th May, 1900, expressed its willingness and desire to join with the government of the United States in the examination and repair of monuments upon the boundary between Canada and the United States.

The Minister further states that the occasion for the above mentioned Minute was an invitation on the part of the authorities of the state of New York to the government of Canada to join with them in an examination of the northern boundary of their state, where it abuts upon the province of Quebec. This proposal Your Excellency's advisers declined to accede to, for the reason that the mere examination of the monuments would not serve any very practical end, unless provision were made for the restoration of lost or broken monuments, a matter which could not be dealt with except with the consent and co-operation of the government of the United States.

The Minister further states that this objection is not set aside by the note of the United States Secretary of State. Although the note indicates the agreement of the United States as regards only a small part of the work proposed by Your Excellency's government, and a more extended agreement would be more satisfactory, he is of the opinion that concurrence in the limited proposal is in the public interest.

The Minister further observes that it appears that of 130 monuments originally placed on the New York boundary, 37 are now in first-class condition, whereas in 1890 an examination of this line by an officer of the Department of the Interior showed 51. The rapid deterioration of the monuments thus apparently not only calls for early action towards their restoration, but also indicates the probable condition of the monuments on the prolongation eastward of this line, north of the states of Vermont, New Hampshire and Maine, and suggests the advisability of action there also.

The committee, on the recommendation of the Minister of the Interior, advise that Your Excellency be moved to inform Her Majesty's Ambassador at Washington that the government of Canada is willing to join with the government of the United States in the examination and restoration where necessary of the monuments along the line between the province of Quebec and the state of New York, but desires to suggest that the scope of the proposed joint operations be enlarged so as to cover the whole of the boundary line, which was marked under the Webster-Ashburton Treaty, from the St. Lawrence to the St. Croix river.

All which is respectfully submitted for Your Excellency's approval.

JOHN J. MCGEE,  
*Clerk of the Privy Council.*

EXTRACT FROM A REPORT OF THE COMMITTEE OF THE HONOURABLE THE PRIVY COUNCIL, APPROVED  
BY HIS EXCELLENCY ON THE 16TH AUGUST, 1901

The Committee of the Privy Council have had under consideration a despatch, hereto attached, dated July 17, 1901 from His Majesty's Chargé d'Affaires at Washington, transmitting a copy of a note from the Secretary of State of the United States having reference to the



condition of the monuments on the boundary between Canada and the state of New York, and suggesting that in view of the simplicity of the task of executing the necessary repairs, these would be carried out by the direct co-operation of the Department of the Interior of Canada with that of the Engineer of the state of New York, without awaiting the conclusion of any future agreement between His Majesty's government and the United States government for the more effective demarcation of the frontier.

The Minister of the Interior, to whom the said despatch was referred, submits that the proposed co-operation with the state of New York, with the concurrence of the government of the United States, is quite in accord with the views expressed by His Excellency's advisers in the Minutes of the Council of the 26th May, 1900, and 5th January, 1901, although the scope of the proposed operations is restricted to the limits of the state of New York, and, as set forth in these Minutes, an inquiry into the conditions of the whole land boundary between the United States and Canada is to be desired.

The Committee advise that His Excellency be moved to inform His Majesty's Chargé d'Affaires at Washington of the concurrence of the government of Canada with the proposal of the Secretary of State of the United States, it being understood that the agreement to the proposed co-operation is without prejudice to any further agreement between the two governments for the more effective demarcation of the existing treaty boundary in that quarter, and that, while each government shall pay the expenses of its Commissioner and surveyors, the actual cost of repairs shall be equally divided.

All which is respectfully submitted for His Excellency's approval.

JOHN J. MCGEE,  
*Clerk of the Privy Council.*

BRITISH EMBASSY,  
*Newport, R. I., July 17, 1901.*

HIS EXCELLENCY,

THE EARL OF MINTO, G. C. M. G.

With reference to Lord Pauncefote's despatch, No. 3, of January 12 last, I have the honour to transmit to Your Excellency herewith a copy of a further note from the United States government, drawing attention to the danger of the obliteration of the boundary between Canada and the state of New York through the dilapidation of the monuments, and suggesting that, in view of the simplicity of the task of executing the necessary repairs, it should be carried out by the direct co-operation of the Department of the Interior of Canada with that of the Engineer of the state of New York, without awaiting the conclusion of any further agreement between His Majesty's government and the United States government for the more effective demarcation of the frontier, such as that which, it is hoped, may result from the survey suggested by the latter last January and communicated to Your Excellency in Lord Pauncefote's despatch No. 13.

I should be grateful if Your Excellency would be good enough to inform me what answer I should return to the proposal of the United States government.

GERARD LOWTHER.

DEPARTMENT OF STATE,  
*Washington, July 15, 1901.*

MR. GERARD A. LOWTHER.

I have the honour to inform you that the department is in receipt of a letter from the Governor of New York, dated the 14th ultimo, in which he says that the State Engineer has called his attention to correspondence that the latter has had with the Department of the Interior of the Dominion of Canada in relation to replacing and repairing the monuments that mark the boundary line between the state of New York and the Dominion of Canada. The State Engineer informs the Governor that the monuments are in such a fragile and broken condition that unless they are replaced very soon by more permanent ones the boundary line may be lost.

The Governor requests that the matter may be brought to the attention of the British Ambassador, with a view to having early action taken to repair and replace the dilapidated monuments.

In this connection I beg to recall to your attention the proposal contained in the department's note to Lord Pauncefote of October 29, 1900.

While the department still adheres to the view expressed in its note of January 29, 1901, in which it is gratified to see that the Government of the Dominion of Canada shares, that a general survey of the whole land and water boundary between the two countries, with a view



to replacing lost monuments and erecting new ones, as well as determining by buoys or ranges, or both, the water boundaries in the narrow lake channels, is most desirable, the question presented on the New York boundary is of so simple a nature that it is conceived that no difficulty will be found in carrying out, forthwith, the suggestion of the Governor of the state. There is no question of settling any dispute arising from the total disappearance of old monuments or the insufficient marking of the line by the treaty Commissioners. It is merely a matter of repairing existing line marks, as to the situation of which no question or doubt can arise.

It is not thought that an international convention would be necessary to provide for painting iron monuments, cementing the defective masonry of stone monuments, restoring inscriptions obliterated by exposure to the elements, or, in short, executing all such mere repairs as may be needful to enable the line marks to subserve the purpose for which they were set up. All this can be done by the joint action of the appropriate agents of the Engineer's Department of the state of New York and of the Department of the Interior of Canada, without prejudice to any future agreement between the two governments for the more effective demarcation—if need be—of the existing treaty boundary in that quarter.

It is hoped that an early and favourable consideration may be given to this proposal.

JOHN HAY

BRITISH EMBASSY,  
*Washington, January 12, 1901.*

HIS EXCELLENCY,  
THE EARL OF MINTO, G. C. M. G.,  
*The Governor General.*

I have the honour to acknowledge the receipt of Your Excellency's despatch, No. 6, of the 9th instant, inclosing a copy of an approved Minute of the Privy Council for Canada, intimating the willingness of the Canadian government to join with the government of the United States in the examination and restoration, where necessary, of the monuments along the line between the province of Quebec and the state of New York, but suggesting the extension of the proposed joint operations so as to include the whole of the boundary line marked under the Webster-Ashburton Treaty, from the St. Lawrence to the St. Croix river.

I have forwarded the Minute to the United States government, with the request that I may be informed of their views on the suggestion therein contained for communication to Your Excellency.

PAUNCEFOTE.

DEPARTMENT OF STATE,  
*Washington, August 30, 1901.*

HIS EXCELLENCY  
THE GOVERNOR OF NEW YORK,  
*Albany.*

Referring to your letter of the 23rd ultimo, I have now the honour to inform you that on the 25th instant the British Chargé d'Affairs *ad interim* advised me that the Privy Council of Canada concurred in your proposal that the restoration of defective monuments marking the boundary between New York and Canada be proceeded with under the joint direction of the state engineer of New York and the Canadian Department of the Interior, without awaiting the conclusion of a more formal agreement between this government and that of Great Britain.

The Canadian government wishes it to be understood, however, that this agreement is without prejudice to any further measures which may be taken for the demarcation of the boundary between the two countries, and that, while each government shall pay the expenses of its Commissioner and surveyors, the actual cost of restoring the monuments shall be equally divided.

I would now request you to put the state engineer of New York in direct communication with the Canadian Department of the Interior.

ALVEY A. ADEE,  
*Acting Secretary.*

STATE OF NEW YORK,  
OFFICE OF THE STATE ENGINEER AND SURVEYOR,  
*Albany, September 4, 1901.*

Examination and Repair of Boundary Line Monuments.

Hon. E. DEVILLE,  
*Surveyor-General, Department of the Interior,  
Ottawa, Canada.*

You will doubtless recall some correspondence which we had recently with relation to the examination and repair of monuments marking the boundary line between the Dominion of Canada and the State of New York.

During the present year the matter has been the subject of correspondence between the Governor of this state, the Secretary of State at Washington and the representatives of your government, and I am now in receipt of a letter under date of August 30, 1901, from Hon. Alvey A. Adee, Acting Secretary of State (a copy of which is herewith inclosed) transmitted to me by Governor Odell.

In accordance with the suggestion contained in the letter above mentioned, I have the honour to call your attention to this matter, hoping that arrangements can be perfected so that the examination and repair of these monuments can be made at as early a date as possible, especially in view of the fact that the season in which outdoor work can be conducted is now rapidly drawing to a close.

My understanding is that each government shall pay the expenses of its engineers, while the actual cost of restoring the monuments shall be equally divided between the two governments.

In 1900 an agreement was entered into between the State of New York and the State of Pennsylvania for the examination and repair of monuments between the two states on similar terms, and in view of the fact I take the liberty of inclosing herewith a copy of that agreement, as I believe with such modifications as might be made necessary in paragraph 2 the general form of the agreement would cover the work contemplated in reference to the boundary line monuments between Canada and New York. I offer this merely as a suggestion, however, and will be glad to arrange the matter in such way as you desire either by formal agreement or by exchange of letters.

Awaiting your reply,

EDWARD A. BOND,  
*State Engineer and Surveyor.*

EXTRACT FROM A REPORT OF THE COMMITTEE OF THE HONOURABLE THE PRIVY COUNCIL, APPROVED BY HIS EXCELLENCY ON THE 28TH SEPTEMBER, 1901

On a report dated 17th September, 1901, from the Minister of the Interior, submitting with reference to the proposal that the government of Canada should join with that of the state of New York in an examination of their common boundary, with a view to the restoration of destroyed or damaged monuments, that a communication has recently been received from the State Engineer and Surveyor of the State of New York, proposing that a formal working agreement as to the details of the work and a division of the expenses be entered into between the governments of Canada and the state of New York, or by officials designated by those governments; he submits, as a convenient form of agreement, the agreement entered into for a like purpose in the year 1900 between the states of New York and Pennsylvania.

The Minister, seeing no objection to an agreement of the character proposed, recommends that Mr. W. F. King, the Chief Astronomer of the Department of the Interior, who is familiar with this question, be appointed commissioner to act with the officer who may be delegated by the State of New York, with authority to enter into an agreement of the character above mentioned, and to make arrangements for the commencement of field operations before autumn is too far advanced.

The committee submit the same for His Excellency's approval.

JOHN J. MCGEE,  
*Clerk of the Privy Council.*

BRITISH EMBASSY,  
*Newport, R. I., September 2, 1901.*

HIS EXCELLENCY,  
THE EARL OF MINTO, G. C. M. G.,  
*The Governor General.*

With reference to Your Excellency's despatch, No. 70, of the 20th ultimo, I have the honour to transmit herewith a copy of a note I have received from the United States government.

Mr. Adee states that he has made known to the government of New York the assent of Your Excellency's government to the proposal that the restoration of the monuments on the boundary between New York and Canada be undertaken without awaiting the conclusion of a formal agreement between the governments of Great Britain and the United States, and Mr. Adee adds that he has asked the Governor to put the Engineer of the state in communication with the Canadian Department of the Interior.

GERARD LOWTHER.

DEPARTMENT OF STATE,  
*Washington, August 30, 1901.*

MR. GERARD LOWTHER.

I have the honour to acknowledge with gratification the receipt of your note, No. 232, of the 25th instant, informing me of the assent of the Canadian government to the proposal of the Governor of New York that the restoration of the monuments on the boundary between New York and Canada be undertaken without awaiting the conclusion of a formal agreement between this government and that of Great Britain.

I have made this known to the Governor of New York, and have asked him to put the Engineer of the state in communication with the Canadian Department of the Interior.

ALVEY A. ADEE,  
*Acting Secretary.*

These negotiations resulted in re-marking the New York-Quebec boundary and determining the geographic positions of the monuments by means of an accurate tape traverse. This work is briefly described in this report under "Field operations, season of 1902," and in detail in the annual report for 1904 of the chief astronomer and boundary commissioner, Department of the Interior, Dominion of Canada, and also in the annual report of the New York State engineer and surveyor for 1902.

The next important step toward the re-marking of the remainder of this portion of the boundary was the joint preliminary examination of the line made in 1905 by representatives of the two Governments. Their report showed the necessity for the resurvey and remonumenting of this portion of the boundary, from the source of the St. Croix River to the Richelieu River, at which point the remonumenting of 1902 had been terminated. The Governments had agreed that where the work to be done involved no disputed question as to the source or location of the line, but required only the restoration of the original monuments and the erection of new ones in order to render more effective the boundary as already surveyed and marked, it was not necessary to enter into a formal convention for that purpose, and that an informal arrangement making provision on both sides for the joint performance of the work was all that was required, and these principles were considered applicable to the Vermont-Quebec boundary. Accordingly, appropriations were made by both Governments for this portion of the work. By an exchange of notes between the Department of State and the British Embassy, it was agreed and arranged that a commission should be appointed to carry out the work and that each Government should bear the expense of its own commissioner and of his surveyor and assistants, and that the two Governments should bear equally the cost of the monuments, their transportation, and erection.



EXTRACT FROM A REPORT OF THE COMMITTEE OF THE PRIVY COUNCIL, APPROVED BY THE GOVERNOR GENERAL ON THE 21ST MAY, 1906

The Committee of the Privy Council have had under consideration a despatch, dated 8th January, 1906, from His Majesty's Ambassador at Washington transmitting copy of a note which he has received from the Secretary of State of the United States relative to the more perfect demarcation of the easterly portion of the International boundary line between the United States and Canada.

The Minister of the Interior to whom the despatch was referred observes that the proposal to more perfectly mark the line between Vermont and Quebec, as well as the suggested extension of the work as far as the St. Croix River, is conformable to the view expressed by the Government of Canada in the Minute of Council of the 8th May, 1900, in which the desirability of the re-marking of those portions of the boundary line which had been surveyed and marked in former years, but on which the monuments had fallen largely into disrepair, was pointed out. The boundary line referred to in that Minute, West of Lake Superior, has since been referred to a joint Commission, which is at present engaged in its re-survey and re-marking. The portion eastward, from the St. Lawrence River as far as the Richelieu River, was re-marked under agreement with the State of New York, concurred in by the Government of the United States in 1902 and 1903.

The Minister further observes that of the parts of the Southern Boundary of Canada referred to in the Minute of Council of the 8th May, 1900, there remains, therefore, only the eastern section, from the Richelieu River to the St. Croix. This was marked by a joint Commission about the years 1843 and 1846, in pursuance of the Treaty of Washington of 1842. An examination made last year of the monuments along this line showed that many were in bad repair or altogether missing, and that urgent need exists for a renewal of the marks.

The Minister recommends therefore that the Government of Canada join with that of the United States in this re-survey and renewal of monuments, on an understanding that each Government shall pay the expenses of its Commissioner and his surveyors and assistants, but that the cost of the monuments, with their transport and erection, be shared equally by the two Governments.

The Committee advise that His Excellency be moved to inform, accordingly, the Right Honourable the Secretary of State for the Colonies and His Majesty's Ambassador at Washington.

All which is respectfully submitted for approval.

JOHN J. McGEE,  
*Clerk of the Privy Council.*

To the Honourable,  
THE MINISTER OF THE INTERIOR.

On July 10, 1906, Mr. O. H. Tittmann, Superintendent of the United States Coast and Geodetic Survey, was designated as commissioner to represent the United States with respect to the re-marking and mapping of the entire line from the Richelieu River eastward to the waters of the St. Croix River, but in view of the limitation of the work to be carried on under the appropriation referred to, the supervision of the demarcation of the line between the Richelieu River and Halls Stream was the immediate duty assigned to him, and he was authorized "to arrange the details and to carry out the work and to sign the final report and maps, as commissioner for the United States, jointly with the British commissioner."

Mr. W. F. King having been designated as commissioner on the part of Great Britain, the work authorized was thereupon jointly undertaken by him and Mr. Tittmann.

### APPENDIX III

#### ORIGINAL SURVEY AND DEMARCATION OF THE BOUNDARY UNDER THE TREATY OF 1842

In accordance with the provisions of the treaty of Washington, 1842, two commissioners were appointed to survey and mark the boundary from the source of the St. Croix River to the St. Lawrence River, Albert Smith, for the United States, and Lieut. Col. J. B. B. Estcourt, for Great Britain. The United States commissioner's assistants were Major Graham, head of the scientific corps of the United States, Captain Johnson, Lieutenants Whipple, Thom, Emory, Lee, Warner, Reynolds, and Meade of the United States topographical engineers, and Mr. Lally, Mr. A. W. Longfellow, and Mr. S. Longfellow, jr. The British commissioner's assistants were Captains Broughton and Robinson, and Lieutenant Pipon, of the Royal Engineers, and Mr. Featherstonhaugh, Mr. Wilkinson, and Mr. Scott, besides a number of noncommissioned officers of the Royal Sappers and Miners.

The first meeting of the commissioners took place on May 1, 1843, at Bangor, Me. They then agreed to commence the work at the source of the St. Croix; but, on account of the lateness of the season, they decided to postpone field operations until the 1st of June, on which date they agreed to meet again at Houlton, Me. At their first meeting they agreed that the surveys should be controlled by latitudes, longitudes, and azimuths determined from astronomical observations made at stations on or near the boundary.

For the sake of clearness and continuity, an account of the astronomical work of the two commissions will be given first, without reference to the surveying operations which were carried on at the same time, and which will be presented separately.

#### ASTRONOMICAL OBSERVATIONS

The commissioners' plans for the astronomical work, for the eastern division of the boundary, extending from the source of the St. Croix to the head of Halls Stream, included the establishment of a chain of astronomical stations along the St. John River, and stations at the ends of the Southwest and South Lines. Among the more important of these stations were those at Grand Falls, the mouth of the Madawaska, the mouth of the Big Black, the forks of the St. John (the junction of the northwest and southwest branches), the outlet of Lake Pohenagamook, English Lake, and the intersection of parallel  $46^{\circ} 25'$  with the Southwest Branch of the St. John River. In every case the difference of longitude between two stations was determined by the interchange of chronometers, though lunar observations also were made at many of the stations.

The position of the point 10 miles up the Northwest Branch of the St. John from the forks (defined by the treaty as being the point of intersection of two of the lines of the boundary) was determined by measuring the length and azimuth of a straight line connecting this point with the astronomical station at the forks ,

of the St. John River. This boundary point was also connected by triangulation with the astronomical station "Lake Hill," and the difference of longitude between "Lake Hill" and Quebec was determined by simultaneous observations on signals consisting of flashes of gunpowder.

At several points on the Highlands boundary, astronomical observations were made to determine latitude and azimuth to control the guide lines of the survey in this region.

The astronomical stations of the western division (Halls Stream and the West Line) included Rouses Point, the principal station, the longitude of which was determined by interchange of chronometers with Quebec, Montreal, Albany, and Cambridge, and independently by lunar observations. The other stations in the western division were St. Regis, N. Y., Richford, Vt., and Lake Memphremagog, all of which were directly connected with Rouses Point by observations of gunpowder flashes; and Canaan Corner, which was connected with Lake Memphremagog by interchange of chronometers. Observations for latitude were made at two other points in the western division, at Trout River and John McCoy's on the boundary west of the Richelieu River.

It will be noted that the completion of this program resulted in a chain of astronomical positions, distributed along the boundary, whose longitudes depended on those of Quebec and Cambridge as well as on lunar observations made at many of the stations.

It might be interpolated here that at this time the longitude of Cambridge had been determined by observations of four solar eclipses, a transit of Mercury, and a transit of Venus, by observations of 66 moon culminations with corresponding observations at Greenwich, England, by interchange of 12 chronometers belonging to the Governments of the United States and Great Britain, and from a large number of occultations to which corresponding occultations or meridian observations had been made in England. The longitude of Quebec was determined by a very large number of lunar observations taken there, and combined with values determined from lunar observations taken at some of the other astronomical stations.

Major Graham, the chief astronomer of the United States commission, had been engaged on surveys along the eastern part of the boundary a few years before the survey under the treaty of 1842 was begun. In 1841 and 1842 he had run a due-north line from the source of the St. Croix to a point north of the St. John, and at Houlton he had made many lunar observations for longitude. Other stations at which he had made observations in 1841 and 1842 were the source of the St. Croix River, Grand Falls, Grand River, Green River, Madawaska, Fort Kent, St. Francis, and Allagash, along the St. John River, five places along the St. Francis River, and the Kennebec Road on the Highlands boundary.

As Major Graham had determined the positions of so many stations in the eastern section, the new work in this region was performed chiefly by the British observers, Captain Robinson and Lieutenant Pipon, who, during the preceding winter, had taken a special course of instruction in astronomy at Greenwich Observatory, England, under the personal supervision of Professor Airy, at that time astronomer royal.



The new astronomical work on the St. John River was not commenced until July, 1843, as it was impossible to get boats up the river until the spring floods had subsided. About the end of June, 1843, the British commission reached Grand Falls, where Captain Robinson remained to make observations, while Lieutenant Pipon proceeded up the river to the mouth of the Madawaska. Their chronometers were interchanged several times by carrying them between stations in bateaux or canoes. Captain Robinson then moved by boat to the mouth of the St. Francis, leaving Lieutenant Pipon at Madawaska. The observing program was repeated, and Lieutenant Pipon ascended the St. Francis, passing Captain Robinson, and occupied a station at the outlet of Lake Pohenagamook. After completing the observing at this station, he came down the St. Francis and, passing Robinson again, went up the St. John to the mouth of the Big Black. Robinson then passed him in turn and went to the forks of the St. John.

In November, before the observing program and interchange of chronometers between these last two stations could be completed, the freezing of the river put a stop to operations. But by January 10 of the following year, 1844, the ice was sufficiently strong to permit the use of carioles drawn by horses to carry the chronometers, and the work was resumed and continued until observations on the Northwest Branch were completed at the boundary point 10 miles from the forks, which point had been determined and agreed upon during the preceding summer by survey parties of the commission. Captain Robinson and Lieutenant Pipon carried out their observing program only with much difficulty, as the extreme cold seriously affected the rates of the chronometers and sometimes stopped them; besides it made the men unwilling to undertake the transportation of the chronometers between stations. When this part of the astronomical work had been completed Captain Robinson and Lieutenant Pipon went out to Quebec early in February, where they remained for a month.

Captain Robinson returned early in March to the boundary point at the end of the 10-mile line on the Northwest Branch to supervise the running of the boundary between that point and the outlet of Lake Pohenagamook, known as the Southwest Line. Lieutenant Pipon had gone from Quebec to Riviere du Loup and from there to Lake Pohenagamook, to work along the same line toward Captain Robinson. Having finished the preliminary line from Lake Pohenagamook to the Northwest Branch in a satisfactory manner, in April both left the woods to be gone until the end of the spring "break-up." Both officers then returned; and Captain Robinson made observations at the Northwest Branch while Lieutenant Pipon determined by trial the intersection of parallel  $46^{\circ} 25'$  with the Southwest Branch of the St. John River. The difference of longitude between that point and the Northwest Branch was determined by interchange of chronometers.

Major Graham determined the intersection of the Southwest Branch of the St. John River with parallel  $46^{\circ} 25'$ , and the combined results of his and Lieutenant Pipon's observations were adopted. He also made independent observations for longitude.

As it was desired to connect the station on the Northwest Branch astronomically with Quebec, Lieutenant Pipon, having finished his work on the South-

west Branch, proceeded to Quebec, where he occupied a station on the Plains of Abraham. Captain Robinson moved his instruments from the Northwest Branch to a near-by hill, called Lake Hill, which was connected with the Northwest Branch by triangulation.

About 20 miles from Lake Hill, in the direction of Quebec, a range of hills could be seen, and it was rightly supposed that these would be visible from Quebec. To the highest of these, Captain Robinson sent Sergeant McGuckin, of the Royal Sappers and Miners, with a party of laborers and the necessary camp outfit. From the Lake Hill station a heliostat was kept reflecting in the direction of this hill to enable Sergeant McGuckin on his arrival there to be sure he was on the one chosen.

When he had reached the hill and found, on climbing a tree, that he could see back to Lake Hill and forward in the direction of Quebec, he had his party cut down the timber on top of the hill, leaving one tall tree standing in the center of the clearing. The limbs and branches were cut off this tree and near its top was fastened a small pulley, through which was run an endless rope with a conical tin cup attached. A charge of gunpowder, weighing from one-fourth to one-half pound, was wrapped in paper and put in the cup with a piece of touch paper, which was lighted, and the cup was quickly hoisted to the top of the tree where the charge exploded. The cup was then hauled down again and the operation was repeated.

Sergeant McGuckin had orders to fire these charges every 10 minutes between 8 and 10 o'clock in the evening. He was informed by signals from Lake Hill when Lieutenant Pison at Quebec was ready to observe. At the beginning and end of each evening's program two rockets were fired, which were found to be more difficult to observe than the bursting charges. Transit observations for time were made on the same evenings as those on which the flashes were observed, this program being carried out on six nights in the last week in September, 1844.

Captain Robinson and Lieutenant Pison attempted also to find the difference in longitude between Lake Hill and Quebec by interchange of chronometers, but as the trip took over four days on very rough roads, they abandoned the attempt. Captain Robinson then left Lake Hill for Montreal, but arrived at that station too late in the season to begin the determination of its longitude, which involved the interchange of chronometers with Quebec via steamers on the St. Lawrence. Captain Robinson returned to England in December, 1844, taking with him the chronometers and such instruments as needed repairs.

In the meantime, a substantial observatory had been built at Quebec, and Lieutenant Pison spent the winter there, making observations for absolute longitude by lunar transits and moon culminating stars.

Captain Robinson returned from England in time to commence observations at St. Helen Island, opposite Montreal, at the opening of navigation on the St. Lawrence River. The difference in longitude between this point and Quebec was obtained by four interchanges of chronometers.

Lieutenant Pison then moved from Quebec to St. Regis, where the West Line ends at the St. Lawrence River, and set up a station there. Chronometers were again exchanged with St. Helen Island, being carried by steamer and coach to

Cornwall and thence to St. Regis by canoe. In the meantime several interchanges of chronometers were made between Captain Robinson, at St. Helen Island, and Major Graham, who was carrying out an extensive observing program at Rouses Point.

St. Regis and Rouses Point were also connected directly, on the suggestion of Lieutenant Pipon, by observations of flashes fired on Lyon Mountain, N. Y. These observations were made by Lieutenant Pipon at St. Regis and Major Graham at Rouses Point, and gave a difference in longitude agreeing very closely with that obtained by the transportation of chronometers via St. Helen Island.

Lieutenant Pipon also made observations for latitude at a station called John McCoy's, on the boundary 4 miles from Russeltown, Quebec, and at another station near the boundary village of Trout River.

In the meantime Captain Robinson had left St. Helen Island and gone to Lake Memphremagog. The difference in longitude between this station and Rouses Point was determined by observations of flashes fired on Jay Peak. These flashes were observed by Captain Robinson at Lake Memphremagog and Major Graham at Rouses Point; some of them were also observed at an astronomical station at Richford by Lieutenant Thom, with whom Captain Robinson made an additional set of observations.

As an experiment, differences in longitude between Rouses Point and Lake Memphremagog and between Richford and Lake Memphremagog were obtained by interchange of chronometers, but only one round trip between each pair of stations was made. The results agreed quite closely with those obtained by observations of flashes. When this work was completed the British officers went to Washington, to assist in revising the computations.

In December of that year, 1845, Major Graham made observations at the intersection of the West Line with Halls Stream, near Canaan Corner, while Lieutenant Whipple occupied the station at Lake Memphremagog. The difference in longitude was obtained by transportation of chronometers, but observations were also made at both places for absolute longitude. At a station on the Highlands near the source of Halls Stream, Lieutenant Emory observed a latitude.

The British observers were assisted in every possible way by Professor Airy, astronomer royal at Greenwich Observatory, who not only gave them special training, but advised them as to the methods and instruments to be used, and finally revised all their computations. Professor Airy also supplied Major Graham with considerable astronomical data obtained not only at Greenwich but at other European observatories. The instruments used by the British commission were two 30-inch transits, a 20-inch transit, a 15-inch altitude and azimuth instrument, a 12-inch altitude and azimuth instrument, besides numerous smaller theodolites, reflecting circles, sextants, compasses, barometers, and chronometers.

Major Graham's observations were taken mostly with two transits, whose focal lengths of telescope were 43 and 46 inches and aperture  $2\frac{3}{4}$  inches, whereas Lieutenant Whipple used a 30-inch transit. The last two of these instruments, as well as many of those used by the British commission, were made by the firm of Troughton, & Simms, London, England.



## SURVEYING THE BOUNDARY

For purposes of reference it will be convenient to retain the names of the nine subdivisions of this portion of the international boundary which were used by the commission of 1842. In the order in which they were surveyed, they are as follows:

1. The North Line, from the source of the St. Croix to the St. John River.
2. The St. John River.
3. The St. Francis River.
4. The Southwest Line.
5. The South Line.
6. The Southwest Branch of the St. John River.
7. The Highlands.
8. Halls Stream.
9. The West Line, or forty-fifth parallel of Valentine and Collins.

## THE NORTH LINE

Surveying operations were begun in June, 1843, at the source of the St. Croix River, at the wooden post set in 1817, which point had been first marked in 1797 by the commission appointed under the treaty of 1794 to determine and describe the true St. Croix River.

As the treaty of 1842 provided that the "exploring line" of Colonel Bouchette and Mr. Johnson, run in 1817-18, was to be adopted as the boundary, it had first to be relocated. This was done with difficulty by a joint party from the two commissions, who retraced and reblazed the old line. Afterwards it was cleared to a width of 30 feet by a United States party working from the Presque Isle River to the source of the St. Croix and by a British party working northward from the Presque Isle River to the St. John. After the vista was opened, the line was surveyed by a joint party under Mr. Wilkinson and Mr. Lally. Courses of convenient lengths were laid down, but each one was required to fall within the 30-foot strip. At 1-mile intervals, and at each angle of deflection, as well as at the crossings of roads and rivers, a cast-iron post was subsequently set. This work was completed by December, 1843, except for the setting of a few monuments, which were set the following spring by Mr. Wilkinson and by an officer representing the United States.

## THE ST. JOHN RIVER

The St. John River also was surveyed during the summer of 1843, by two joint parties. One party, directed by Captain Broughton and Lieutenant Thom, for the British and United States commissions, respectively, surveyed the river between Grand Falls and Madawaska; another, with Mr. Featherstonhaugh and Lieutenant Lee in similar capacities, surveyed down the river from the mouth of the St. Francis to the Madawaska. Apparently the method employed was a chained traverse run along each bank, with connecting lines to points on the islands, which were also surveyed. Monuments were placed on these islands the following year by Mr. Wilkinson and an officer representing the United States. Soundings were taken in the river near the islands to determine on which side the deeper channel, and consequently the boundary, lay. The surveys were finished, and charts pre-

pared from them were completed at Grand Falls by October 12; and on that and the following day, Mr. Smith and Lieutenant Colonel Estcourt decided the nationality of the islands.

#### THE ST. FRANCIS RIVER

As the treaty provided that the boundary should follow the St. Francis River from its mouth to the outlet of Lake Pohenagamook, it was necessary to select a point which should be considered the outlet of that lake. This was done on August 15, 1843, by Lieutenant Colonel Estcourt and Captain Johnson; and though the outlet of the lake is well defined, a stake was set at the adopted point as a mark for the surveyors. The river was surveyed in September and October by a joint party, Lieutenant Thom representing the United States commission and Sergeant McGuckin the British, but no monuments were set.

#### THE SOUTHWEST LINE

The treaty provided that this line was to connect the outlet of Lake Pohenagamook with a point on the Northwest Branch of the St. John River, which should be 10 miles in the nearest direction from the main branch of the St. John. The exact point to be considered the outlet of Lake Pohenagamook, as already mentioned, was chosen by Lieutenant Colonel Estcourt and Captain Johnson, and the treaty point on the Northwest Branch was also determined in the summer of 1843.

This work was done chiefly by the United States commission, their parties working under Captain Johnson and Lieutenant Meade. After the Northwest Branch had been surveyed, a trial line was cut and measured, starting at a point just below the junction of the Northwest and Southwest Branches, which was the nearest point on the main stream to the point to be determined, and ending at its intersection with the Northwest Branch. This proved to be nearly 11 miles in length, so a second trial line was cut, which was found by the United States party to be 10 miles and 10 feet in length, and later, by the British measurement, 10 miles and 363 feet. In the meantime, Mr. Featherstonhaugh, for the British commission, determined by triangulation that the approximate position of the treaty point on the Northwest Branch was about 12 miles from the St. Lawrence watershed. Lieutenant Colonel Estcourt's instructions from the British Government were that as long as this distance was at least 7 miles it was quite unimportant whether the point on the Northwest Branch was exactly 10 miles from the forks; and since these instructions were satisfied in both particulars, the intersection of the second trial line with the Northwest Branch was accepted as the treaty point, without any further attempt being made to find a point exactly 10 miles from the forks.

It had been agreed by Mr. Smith and Lieutenant Colonel Estcourt, at a conference held in Washington after most of the field operations of the season of 1843 were finished, that the British commission should be responsible for the opening of the Southwest and South Lines during the winter and spring of 1844, and that the United States commission should cut the line on the Highlands from the Kennebec Road to the source of Halls Stream. The British commission was to be responsible also for that portion of the Highlands east of the Kennebec Road, and it was agreed that the boundary along the Highlands was to be cut during the summer of 1844.

As previously mentioned in the description of the astronomical work, the two ends of this Southwest Line were connected by a chain of astronomical stations, which made it possible to compute the azimuth of the line joining these two points. This part of the astronomical work was completed by the end of January, 1844. The cutting of the line was commenced from both ends in March, 1844, by two British parties, one, under Captain Robinson, working eastward from the treaty point on the Northwest Branch, and the other, under Lieutenant Pipon, working westward from the outlet of Lake Pohenagamook. After Captain Robinson's party had cut 4 miles, their line passed over the shoulder of a very high hill, to which Captain Robinson moved his transit, and from this point he commanded a view of about 40 miles in the direction of the line so that it was not necessary for him to move his instruments again. The chopping party under Mr. Scott ran the line by compass, but they obtained a correction to this line on the top of each hill at night by using a birch-bark torch as a mark and flashes of gun powder for signals. Lieutenant Pipon's party was not so fortunate, and his transit had to be set up at several points on the line.

The two parties came abreast of each other after five weeks of work which was performed under trying and difficult conditions, due to the melting of the snow. The perpendicular distance between the ends of the two lines was 341 feet, which corresponds to an error in the determination of the difference of longitude between the two ends of the line of less than one-half second of time. After the two parties met, each retraced its way, offsetting a signal to the true line on the top of each hill they had passed.

On account of the spring "break-up," work was necessarily suspended until June, when the line as marked by the signals at the end of the offsets was opened out to a width of 30 feet, an 8-foot strip in the center being cut close to the ground. Parties of the British commission, under Mr. Wilkinson, then tested the alignment throughout, using a transit instrument. Lieutenant Thom inspected the line and made a separate survey of it for the United States commission during the same season, 1844.

#### THE SOUTH LINE

The treaty of Washington defined this part of the international boundary as the straight line extending from the treaty point on the Northwest Branch of the St. John (the end of the Southwest Line) to the intersection of parallel  $46^{\circ} 25'$  with the Southwest Branch of the St. John. This latter point was determined by Lieutenant Pipon, of the British commission, in June, 1844, and the determination was later verified by Major Graham of the United States commission. The difference in longitude between the two points was determined by the transportation of chronometers. After the azimuth of the line joining the two points had been computed, work was commenced at both ends, and when the two lines came abreast of each other they were 576 feet apart. Offsets were made from these preliminary lines and the true line was cut out to a width of 30 feet with an 8-foot clear strip. This line, which was cut by the British commission alone, with parties under Mr. Wilkinson and Mr. Scott, was finished in September, 1844, and was examined and surveyed for the United States commission in 1844 by Corporal O'Donnel.



## THE SOUTHWEST BRANCH OF THE ST. JOHN RIVER

This portion of the boundary was surveyed in the winter of 1844-45 by Mr. Lally, of the United States commission. The survey consisted of a traverse chained on the ice and controlled by a scheme of long guide lines from which offsets were measured to the river. This work was subsequently examined and verified by Mr. Wilkinson for the British commission.

## THE HIGHLANDS

As has already been mentioned, the commissioners had agreed that the United States commission should undertake the cutting of the vista along the Highlands west of the Kennebec Road, while the British commission should be responsible for the part of the Highlands east of that road. The two commissioners agreed to meet at the Kennebec Road on the Highlands, on June 1, 1844. Mr. Smith, the United States commissioner, however, was delayed by Congress not voting funds in time and did not arrive until July 28. In the meantime, Lieutenant Colonel Estcourt had received instructions from the British Government that in case the United States commissioner should not be in a position to push the work rapidly, he had authority to undertake as much of it as he could and to arrange with the United States commissioner about subsequent repayment.

Lieutenant Colonel Estcourt was also instructed that the British Government considered it unnecessary that the boundary in the Highlands should run around the heads of all the small streams, and that a separation of the main valleys was all that was essential. This advice, however, was not followed, possibly due to the objection of Mr. Smith, and the boundary was made to follow the divide between even the smallest streams.

Lieutenant Colonel Estcourt, on the nonarrival of Mr. Smith in June, had made arrangements by which he could quickly secure large numbers of men and quantities of provisions. When Mr. Smith finally arrived, they agreed, in view of the lateness of the season and of Lieutenant Colonel Estcourt's preparedness, that the British commission should undertake the cutting of the line along the Highlands west of the Kennebec Road, while the United States commission should undertake the section east of the Kennebec Road. As this meant that the British commission would have cut a much greater part of the boundary vista than the United States commission, Mr. Smith agreed to accept the entire responsibility for the cutting out of the West Line. They agreed further that the line along the Highlands, as cut by each commission, was to be regarded as exploratory until verified through surveys made later by the other commission.

By the time these plans had been formulated, work had already been commenced at the Kennebec Road. Setting out from the height of land at that point, guide lines were cut through the woods, as nearly as could be estimated in the general direction of the dividing ridge. From these guide lines, offsets at intervals of about one-half mile were run across the dividing ridge into the drainage basin on the other side. Starting near the head of a stream flowing, for instance, into the St. Lawrence, these offsets were made to cross the ridge and were prolonged until they encountered water flowing in the opposite direction or toward the Atlantic.

The highest point on this line would be, as a rule, on the dividing ridge. In this way, a series of summits was obtained, which, with the connecting line following the divide, constituted the boundary. The direction of the guide lines was changed whenever it was thought necessary, and the bearings of the guide lines and offsets were observed and their lengths were measured, thus controlling the traverse of the boundary itself. Incidentally, bearings of high, conspicuous hills were observed as the work progressed, so that their positions could be shown on the boundary maps.

In order to connect the before mentioned summits, a novel method was employed. A man was stationed at one summit with instructions to blow a horn at intervals of a few minutes. This enabled a party at the next summit to form a clear idea of his direction and, following the highest ground in all its windings, they traversed the ridge between the two summits, blazing the trees as they went, after which the line was cleared out to a width of 30 feet. The work on the guide lines was kept well in advance of the other survey operations in order to enable a number of parties to work simultaneously on the boundary itself.

A large number of men, at one time as many as 500, were employed in the several parties of the British commission engaged in this work. About one-fourth of the men were required to pack in supplies on their backs. The parties engaged in opening the vista found that 10 men would clear about one-fourth mile of boundary per day.

A joint party from each commission determined the chain of summits from the Kennebec Road to the source of the Southwest Branch of the St. John River. The boundary was cleared by a party of the United States commission and was later surveyed separately by Messrs. Lally and Wilkinson for the United States and British commissions, respectively.

The British parties, under Captain Broughton and Mr. Featherstonhaugh, cut the guide lines and determined the summits west of the Kennebec Road, Captain Broughton working from the Kennebec Road to Arnold River, and Mr. Featherstonhaugh between Arnold River and the source of Halls Stream. Mr. Featherstonhaugh assisted also in the determination of the line between the Kennebec Road and the source of the Southwest Branch.

The cutting of much of the boundary vista west of the Kennebec Road was done by parties under Mr. Wilkinson and Mr. Scott, who, after finishing the work on the Southwest and South Lines, brought their men through the woods to the Kennebec Road. Wilkinson's party cut from the Kennebec Road to a point 20 miles west, while Scott's party of 140 men cut from that point to Arnold River, a distance of 70 miles, after which he and Captain Broughton went out to the Kennebec Road and thence to Québec. In the meantime, Mr. Featherstonhaugh was cutting the boundary vista as well as the guide lines west from Arnold River. As the season was getting late, Lieutenant Colonel Estcourt sent orders to Mr. Scott to bring his party to the source of Halls Stream, and with this additional large force the cutting of the line was completed late in November.

The following summer, 1845, Mr. Wilkinson surveyed the boundary for the British commission from the outlet of Lake Pohenagamook to Arnold River, in the

Highlands. From available records it would appear that from that point westward the boundary had been surveyed the previous fall by Captain Broughton and Mr. Featherstonhaugh.

A separate system of guide lines, with offsets to the boundary summits, was established for the United States commission in 1845, and surveys of the boundary through the Highlands were also made by Mr. Lally and Lieutenant Emory.

#### HALLS STREAM

Halls Stream was surveyed by running a guide line in a northerly direction from the intersection of the stream with the West Line, or forty-fifth parallel of Valentine and Collins. Offsets from this guide line were run to intersect the stream, and a chained traverse was also run along the stream itself, this survey being made by a joint party, Mr. Featherstonhaugh and Mr. A. W. Longfellow representing the respective commissions.

#### THE WEST LINE

The treaty of Washington provided that the old Valentine and Collins line, approximately following the forty-fifth parallel, should remain the boundary. This line appears to have been merely a compass line, as the resurvey in the summer of 1845 disclosed the fact that it diverged greatly, though not consistently, from the parallel it was supposed to follow. It was found that it could be traced, though with difficulty, by following the old blazes; and when it had been reopened to a width of 30 feet, points were selected in the cleared area and were joined by straight lines. At one of these points the deflection angle was found to be nearly  $9^{\circ}$ . The exploration was done by the United States commission and verified by the British. The clearing of the line was performed entirely by the United States commission.

Lieutenant Colonel Estcourt, the British commissioner, in his report states that each commission made an independent survey of the line, which appears to be rather a remarkable statement in view of the fact that, though the deflection angles were measured to seconds, there was no discrepancy whatever in the results obtained by the observations of the two commissions. Observations for latitude and longitude were also made at various points along the line by both British and United States observers.

The line was terminated on the bank of the St. Lawrence at the monument set by Andrew Ellicott in 1817 to mark his determination of the forty-fifth parallel. This point was accepted in 1818 by the commissioners, acting under Articles V and VI of the treaty of Ghent, after an independent determination of the latitude had been made by astronomers representing the United States and British commissioners.

Four years after the survey of the Vermont-Quebec boundary under the treaty of 1842, complaints were made that monument 560, in the village of Beebe Plain, had been moved from its original position. This report was investigated, and the monument was restored to its proper place by a commission consisting of Lieutenant Colonels Graham and Ord, representing the United States and Great Britain, respectively. At the same time, this commission set several square, flat-topped granite posts with an east-and-west groove cut in their top surfaces as additional boundary monuments in that vicinity and also reset four of the other cast-iron



monuments near Derby Line, Vt., and Rock Island, Quebec, which had been slightly displaced.

The report of Lieutenant Colonels Graham and Ord, made to the Secretary of State of the United States and to the Governor General of Canada, gives in detail the surveying operations and manner of setting of the several additional boundary marks.

In 1851 the West Line was resurveyed for the United States by Lieutenant Thom.

#### INCIDENTAL SURVEYS

In addition to surveys of the boundary itself, surveys were made of various rivers and lakes near-by, during which the topography was mapped. As already mentioned, a United States party surveyed the Northwest Branch of the St. John River and the St. John itself near the forks in the summer of 1843. During February, March, and April of 1844, British parties surveyed various tributaries and branches of the St. John on the ice. This work was continued by both commissions along the line, although the United States commission devoted more attention to it than did the British. Unfortunately, just before the maps of the United States commission, showing all the topography, were about to be deposited with the Department of State they were destroyed by fire; and although copies had already been sent to England, these did not show all the topography that had been surveyed.

#### MARKING THE BOUNDARY

Two sizes of hollow cast-iron monuments were designed for boundary marks and approved by the commissioners, and these were cast at Boston. The smaller of these monuments was 6 feet long, 6 inches square at the bottom, tapering to 4 inches square at the top. The larger ones were in three sections, with a total length of 10 feet, 15 inches square at the bottom, tapering to 5 inches square at the top. A total of 773 of these monuments were used to mark the boundary from the source of the St. Croix River to the St. Lawrence. Wooden posts were set at two additional points and were replaced by iron monuments in 1916.

The larger monuments, of which only 13 were used, were set at the following points:

The source of the St. Croix.

The intersection of the River St. John with the North Line.

The outlet of Lake Pohenagamook.

The boundary point on the Northwest Branch.

On the left bank of the Southwest Branch at its first intersection with the South Line.

On the left bank of the Southwest Branch at its intersection with the parallel of  $46^{\circ} 25'$ .

At the first point on the Highlands near the source of the Southwest Branch.

On the east side of the Kennebec Road.

Near the source of Halls Stream.

On the right bank of Halls Stream at its intersection with the West Line.

The intersection of the Richelieu River with the West Line, on the right bank.

The intersection of the Richelieu River with the West Line, on the left bank.

The intersection of the River St. Lawrence with the West Line near St. Regis.

On the North Line, as has already been mentioned, a monument was set at the end of each mile, at the end of each course, and at points where the line was crossed by roads or rivers. The monuments at the ends of courses were set diagonally to the line; all others were set square. Most of these monuments on this line were set, by a joint party under Mr. Wilkinson and Mr. Lally, in the fall of 1843. The remainder, and those on the islands of the St. John, were set the succeeding spring by Mr. Wilkinson and by an officer representing the United States.

No monuments were set along the St. Francis River. The Southwest and South Lines were marked by monuments set at intervals of 1 mile, at points where rivers or lakes intersect the line, and on every prominent elevation crossed by the boundary. These monuments were hauled to the boundary during the winter of 1844-45 on horse-drawn sleighs, and were set in the spring by a British party under Mr. Wilkinson.

The Southwest Branch of the St. John was marked by two small monuments at each of its two forks, and a monument was also placed at the small lake at the head of the Southwest Branch. Three more were placed along the small stream which flows into that lake from near the point selected as the first point on the Highlands, where one of the large monuments was set. All this work was done by a British party.

Along the Highlands the monuments had to be hauled to their sites on toboggans during the winter of 1844-45. A British party of 80 men started into the woods at Halls Stream and, after undergoing great hardships and exposure, finally came out on the Kennebec Road, having deposited the monuments at intervals as they progressed. The monuments between the Kennebec Road and the source of the Southwest Branch of the St. John were hauled in during the same winter by a United States party. The monuments between the source of the Southwest Branch and Arnold River were erected the following summer by a British party under Mr. Scott; the remainder of the monuments along the Highlands were erected by two United States surveying parties, who also set the monuments along Halls Stream. Many of the monuments along the Highlands were set in the swampy dips or saddles of the ridge, from which streams run in opposite directions, one toward the St. Lawrence and the other toward the Atlantic.

The West Line was marked in 1845, mostly by United States parties, who used methods previously employed on the North Line.

#### TRANSPORTATION OF SUPPLIES

On account of the sparsely settled condition of the greater part of the country through which this portion of the boundary passes, the problem of the transportation of supplies was a difficult and serious one, especially as the number of men employed was frequently very large, the British commission alone, in 1844, employing about 500 at one time. No railroads approached the boundary, except at Lake Champlain, and few roads, except along part of the St. John Valley and the West Line.

The commissioners at their first meeting, on May 1, 1843, at Bangor, had agreed that it was inadvisable to commence field operations before the first of June. In the meantime, however, the officers of the British commission had reached Fredericton and were making preparations for work. Tents were secured from Boston, provisions from St. John, men were hired at Fredericton, and 18 boats were ordered to be built at Woodstock.

Grand Falls was made the principal supply depot for the summer of 1843, and to that point the supplies of the British commission were taken by boat from Fredericton as soon as the spring floods had somewhat subsided. To supply the parties working along the North Line was comparatively easy, as the St. John River runs nearly parallel and comparatively close to that line. Several roads from the river crossed the boundary, and the United States military roads touched the line near Houlton and Fort Fairfield.

Supplies for the use of the parties working on the St. John were taken up in boats. A subsidiary depot was established at the mouth of the St. Francis, on which stream canoes only could be used; but fortunately only small quantities of provisions were required for the small parties engaged in surveying it.

The United States parties engaged in cutting the 10-mile line from the forks of the St. John to the Northwest Branch had established their principal depot at Seven Islands, to which place the supplies were brought up the St. John in boats. In August, 1843, Lieutenant Colonel Estcourt paid a visit to these parties. It took him a week to go by water from the mouth of the St. Francis to Seven Islands, on account of the rapids and shoals; and with this experience in mind, he decided that transportation on the river would be too slow and expensive for the large quantities of supplies which would be required in that region during the winter and following summer. Similar objections applied to the transportation of any considerable quantities up the St. Francis. Having come to this conclusion, Lieutenant Colonel Estcourt, after reaching the Northwest Branch, set off with a couple of men through the woods toward the St. Lawrence, and in two or three days reached the village of St. Thomas, now called Montmagny.

As he expected the cutting of the North Line to be completed by the end of August, he sent orders for the chopping party on that work to come to St. Thomas via the St. John River and Temiscouata Portage to take up road construction. This party, under Mr. Scott, arrived about the middle of September and immediately began work on a road from that point to Lake Ishaeganalshegeck (now called English Lake) on the Northwest Branch of the St. John.

This road, as soon as completed, was used for the transportation of provisions, chiefly salt pork and sea biscuits, and during the winter of 1843-44 large quantities of supplies were hauled in and stored in a camp built at English Lake. Subsidiary depots were also established during the winter on the other side of this lake and also at the forks of the St. John and at the mouth of the Big Black, and were supplied from the main depot at English Lake. Another depot was also established at the outlet of Lake Pohenagamook, to which point the stores were hauled over a road from the Temiscouata Portage.



The Kennebec Road was also used in the spring of 1844 as a provision road and, as soon as it was agreed that the British commission should undertake to cut out the line along the Highlands during the summer and fall of that year, principal provision depots were established on the Kennebec Road and at Lake Megantic. When the work approached the head of Halls Stream a road was cut from that point to meet the survey parties, and thereafter provisions reached them over this new road.

The supplies had to be carried on men's backs from the provision depots to the working parties; and, as the distances were often long, sometimes as much as 40 miles, and the trails and the weather very bad, many men would make only one trip. Along Halls Stream and the West Line, however, the roads were sufficiently numerous to make the transportation problem comparatively simple.

At the conclusion of the field work, maps of the boundary were prepared and signed by the commissioners. In addition, volumes containing all the astronomical observations of both commissions and appendices containing abstracts of the surveys of the various portions of the boundary were prepared and submitted to the two governments.

A joint report on the work of the commission (reprinted in full in Appendix II) was signed on June 28, 1847, by Lieutenant Colonel Estcourt and Mr. Smith.

## APPENDIX IV

### ELEVATIONS AND DESCRIPTIONS OF BENCH MARKS

Under this heading are given the elevations and descriptions of all permanent primary level bench marks of the international boundary survey along and adjacent to the boundary, together with similar bench marks of the surveys made by other bureaus, which were used for vertical control of the topographic surveys along the boundary.

The bench marks of the Geodetic Survey of Canada consist, except where otherwise specified, of a "copper bolt, three-quarters of an inch in diameter and four inches long, stamped on the end with the letters 'G. S. C., B. M.' and the number of the bench mark," set usually in the masonry of bridges or buildings.

#### THE NORTH LINE

	Elevation (feet)
Initial monument, at the source of the St. Croix River; bronze disk set in the north side of the top of the concrete base, 6 inches from the cast-iron post.....	540. 39
Monument 82, near; top of boulder 38 feet north of Canadian Pacific Railway, Presque Isle-Andover branch, 54 feet east of international boundary line.....	373. 48
Monument 14-A, in north face of; 5 miles west of Debec, New Brunswick, on Houlton branch of Canadian Pacific Railway; Geodetic Survey of Canada B. M. No. 22-B.....	530. 20
Monument 82, in south face of concrete base of; $4\frac{3}{4}$ miles west of Aroostook, New Brunswick, on Aroostook branch of Canadian Pacific Railway; Geodetic Survey of Canada B. M. No. 42-B....	373. 06

#### THE ST. JOHN AND ST. FRANCIS RIVERS

Siegas, New Brunswick; in easterly concrete footing under Canadian Pacific Railway water tank; Geodetic Survey of Canada B. M. No. 51-B.....	451. 83
Siegas, New Brunswick, 2 miles northwest of; opposite a point on Canadian Pacific Railway at mileage 38.9 from Aroostook, New Brunswick; in northwest face of coping on northeast end of concrete arch culvert under Canadian National Railway; Geodetic Survey of Canada B. M. No. 52-B.....	439. 20
Ste. Anne de Madawaska, New Brunswick, 2 miles northwest of; in southwest concrete wall of culvert under Canadian National Railway, opposite a point on Canadian Pacific Railway at second telegraph pole northwest of milepost 43 from Aroostook, New Brunswick; Geodetic Survey of Canada B. M. No. 53-B.....	459. 92
Green River, New Brunswick, railway station, three-fourths mile southeast of; in southeast face of concrete wall behind northwest abutment of Canadian Pacific Railway bridge over Green River; Geodetic Survey of Canada B. M. No. 54-B.....	457. 01
St. Basil, New Brunswick, $2\frac{1}{2}$ miles southeast of; in northeast concrete wall of culvert under Canadian National Railway opposite a point on Canadian Pacific Railway at eighth telegraph pole northwest of milepost 50 from Aroostook, New Brunswick; Geodetic Survey of Canada B. M. No. 55-B..	478. 17
Edmundston, New Brunswick; in northeast concrete wing wall of subway under Canadian National Railway, 300 feet west of bridge over Madawaska River; Geodetic Survey of Canada B. M. No. 59 B. ....	461. 82
Edmundston, New Brunswick; in face of rock cut at north side of railway track, 140 feet west of west wall of Canadian Pacific station house; Geodetic Survey of Canada B. M. No. 60-B.....	482. 94
Baker Brook, New Brunswick, one-fourth mile west of; in east face—north side of track—of concrete retaining wall behind east abutment of plate-girder bridge on Canadian National Railway; Geodetic Survey of Canada B. M. No. 264-B.....	514. 40

Monument 178, in north face of concrete base of; 10 feet south of south line of Canadian National Railway right of way and one-half mile west of Estcourt, Quebec, on west bank of the St. Francis River; Geodetic Survey of Canada B. M. No. 277-B-----	Elevation (feet) 685. 58
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THE KENNEBEC ROAD—VICINITY OF JACKMAN, ME., TO THE BOUNDARY

Jackman, Me., 7.3 miles north of; at intersection of Heald Pond Road with Canada (Kennebec) Road; top of large rock opposite schoolhouse; bronze disk stamped "Me. 1922"; United States Geological Survey P. B. M-----	1, 516. 54
Jackman, Me., 10.2 miles north of; 450 feet south of summit of hill, 10 feet east of road, 60 feet west of logging railroad, on flat top rock; bronze disk marked "U. S. & C. B. Survey B. M.," cemented in rock-----	2, 083. 87
Jackman, Me., 13.4 miles north of; across road from northwest corner of grain field, 125 feet southeast of branch road, 30 feet northeast of center of road, on large rock 6 by 12 feet; bronze disk marked "U. S. & C. B. Survey B. M.," cemented in rock-----	1, 778. 84
Monument 351-B, in top of; on east side of old Canada (Kennebec) Road opposite line house; about 16.7 miles north of Jackman, Me.; bronze disk-----	2, 075. 71
Monument 351; top of iron post-----	2, 101. 47
Monument 351-A; bronze disk in top of concrete monument-----	2, 088. 54
Monument 352; top of iron post-----	2, 068. 14

THE HIGHLANDS BOUNDARY, CANADIAN PACIFIC RAILWAY CROSSING TO THE HEAD OF HALLS STREAM

Monument 402, 89 feet west of; about 160 feet east of Boundary Siding station house; in concrete bench-mark pier, 2 feet north of south line of Canadian Pacific Railway right of way; Geodetic Survey of Canada B. M. No. 24-A-2-----	1, 849. 48
Monument 402, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1851"-----	1, 851. 37
Megantic, Quebec; about 550 feet east of railway station, in second course of stonework below top, in south face of retaining wall behind west abutment of Canadian Pacific Railway bridge over Chaudiere River; Geodetic Survey of Canada B. M. No. 22 A-----	1, 310. 07
Three Lakes Wharf, 30 feet above red waiting room, on large rock; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 311. 53
Monument 403, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2600"-----	2, 599. 58
Monument 404, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2072"-----	2, 071. 70
Monument 405, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2913"-----	2, 913. 38
Monument 406, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2244"-----	2, 243. 96
Monument 407, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2805"-----	2, 804. 68
Monument 408, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2458"-----	2, 458. 47
Monument 409, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2342"-----	2, 341. 81
Monument 410, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3319"-----	3, 319. 30
Monument 411, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3581"-----	3, 582. 02
Monument 412, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3351"-----	3, 350. 91
Monument 413, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2993"-----	2, 993. 15
Monument 414, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3541"-----	3, 541. 11
Monument 415, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2932"-----	2, 932. 29
Monument 416, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2342"-----	2, 341. 76
Monument 417, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3324"-----	3, 324. 87
Monument 418, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3033"-----	3, 033. 31
Monument 419, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1707"-----	1, 707. 69



	Elevation (feet)
Monument 420, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1510"-----	1, 511. 29
Monument 421, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1704"-----	1, 704. 42
Monument 422, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1565"-----	1, 564. 68
Monument 423, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1479"-----	1, 478. 77
Spider River, 200 feet from; 2 miles northeast of Louise Mountain and 3 miles above Spider Lake; in large rock in front of Bolduc's foreman's cabin; bronze disk marked "U. S. & C. B. Survey B. M."--	1, 366. 96
Monument 424, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1611"-----	1, 611. 35
Monument 425, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2470"-----	2, 470. 38
Monument 426, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2047"-----	2, 047. 20
Monument 427, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1961"-----	1, 961. 34
Monument 428, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2185"-----	2, 185. 70
Monument 429, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 542. 34
Monument 430, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 407. 27
Monument 431, 100 feet northeast of; bronze disk in large rock, disk marked "U. S. & C. B. Survey B. M."-----	1, 534. 70
Monument 431, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1533"-----	1, 533. 34
Woburn, Quebec, about 1,200 feet west of; in rock abutment of bridge; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 465. 48
Monument 432, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 1847"-----	1, 846. 92
Monument 433, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2393"-----	2, 393. 48
Monument 434, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 275. 81
Monument 435, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2763"-----	2, 763. 90
Monument 436, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2867"-----	2, 867. 82
Monument 437, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2997"-----	2, 998. 43
Monument 438, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2531"-----	2, 531. 99
Monument 439, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3151"-----	3, 152. 87
Monument 440, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2833"-----	2, 835. 75
Monument 441, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3291"-----	3, 293. 22
Monument 442, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3232"-----	3, 234. 27
Monument 443, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3791"-----	3, 793. 93
Monument 444, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3351"-----	3, 353. 38
Monument 445, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3724"-----	3, 726. 85
Monument 446, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3556"-----	3, 558. 60
Monument 447, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3532"-----	3, 534. 43
Monument 448, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2877"-----	2, 879. 89
Monument 449, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2932"-----	2, 935. 35
Monument 450, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3524"-----	3, 526. 54
Monument 451, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3099"-----	3, 102. 41
Monument 452, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2478"-----	2, 481. 43
Monument 453, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2622"-----	2, 625. 15

	Elevation (feet)
Monument 454, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2801"-----	2, 803. 73
Monument 455, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3009"-----	3, 011. 76
Monument 456, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2636"-----	2, 638. 89
Monument 457, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2560"-----	2, 562. 89
Monument 458, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2572"-----	2, 575. 59
Monument 459, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2356"-----	2, 359. 36
Monument 460, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 254. 74
Monument 461, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2349"-----	2, 352. 12
Monument 462, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2409"-----	2, 412. 60
Monument 463, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2551"-----	2, 554. 00
Monument 464, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2574"-----	2, 577. 85
Monument 465, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2140"-----	2, 139. 62
Monument 466, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2588"-----	2, 588. 70
Monument 467, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2672"-----	2, 672. 07
Monument 468, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2488"-----	2, 487. 84
Monument 469, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2274"-----	2, 274. 44
Monument 470, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 3192"-----	3, 191. 89
Monument 471, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2211"-----	2, 211. 45
Monument 472, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2266"-----	2, 266. 20
Monument 473, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2359"-----	2, 359. 69
Monument 474, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2259"-----	2, 260. 08
Monument 475, in base of; bronze disk marked "U. S. & C. B. Survey B. M. 2589"-----	2, 589. 56
Monument 476, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 521. 63
Monument 477, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 340. 02
Chartierville, Quebec, 225 feet west of cross roads in; south side of road to Sawyerville, Quebec; bronze disk set in concrete culvert retaining wall-----	1, 681. 90
Monument 478, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 511. 04
Monument 479, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	3, 177. 88
Monument 480, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 932. 88
Monument 481, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 836. 06
Monument 482, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 911. 84
Monument 483, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 406. 88
Monument 484, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 359. 50
Monument 485, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 406. 63
Monument 486, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 302. 58
Monument 487, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 036. 22
Monument 488, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 037. 60
Monument 489, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 261. 20
Monument 490, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 040. 18

	Elevation (feet)
Monument 491, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 025. 58
Monument 492, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 830. 77
Monument 493, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 032. 69
Monument 494, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 778. 01
Monument 495, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 903. 43
Monument 496, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 932. 02
Monument 497, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 020. 86
Monument 498, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 761. 82
Monument 499, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 668. 25
Monument 500, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 585. 23
Monument 501, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	2, 013. 30
Monument 502, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 801. 86
Monument 503, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 915. 96
Monument 504, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 959. 41
Monument 505, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 938. 32
Monument 506, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 914. 34
Monument 507, in base of; bronze disk marked "U. S. & C. B. Survey B. M."-----	1, 907. 44
St. Isidore, Quebec, 2 miles south of; in east face of large boulder, 20 feet east of Maine Central Railroad track, 160 feet south of a wooden culvert, and 780 feet south of milepost 33 from Lime Ridge; Geodetic Survey of Canada B. M. No. 554-B-----	1, 355. 88
St. Malo, Quebec, one-half mile south of; 720 feet north of milepost 36 from Lime Ridge, in concrete bench-mark pier, 4 feet west of east line of Maine Central Railroad right of way; Geodetic Survey of Canada B. M. No. 555-B-----	1, 542. 87
Malvina, Quebec, 3 miles south of; in second course of stonework above bridge seat, in east end of south face of retaining wall behind north abutment of Maine Central Railroad bridge over Halls Stream; Geodetic Survey of Canada B. M. No. 556-B-----	1, 356. 69

## THE VERMONT-QUEBEC LINE

Monument 519-A, in east side of base; one-half mile north of Beecher Falls, Vt., and one-fourth mile south of Comin Mills, Quebec, railway station; in the dooryard of Chouinard's line house, immediately west of the Maine Central Railroad; Geodetic Survey of Canada B. M. No. 562-B-----	<sup>1</sup> 1, 102. 63
Norton Mills, Vt., railway station, 400 feet north of; in second course of stonework below top, in southeast face of southeast curved retaining wall of Grand Trunk Railway bridge at international boundary; Geodetic Survey of Canada B. M. No. 23-----	<sup>1</sup> 1, 247. 75
Norton Mills, Vt., railway station, 400 feet north of; in second course of stonework above ground in east end of south face of north abutment of Grand Trunk Railway bridge at international boundary; Geodetic Survey of Canada B. M. No. 24-----	<sup>1</sup> 1, 213. 47
Stanstead, Quebec, railway station, 45 feet east of water tank at; in east end of north face of capstone on north end of old stone culvert under Boston & Maine Railroad; Geodetic Survey of Canada B. M. No. 34-----	<sup>1</sup> 1, 006. 88
Beebe Junction, Quebec, 1¾ miles north of; in first course below capstone, in east face of south abutment of rough stone culvert under Boston & Maine Railroad, and 150 feet south of rock cut on curve; Geodetic Survey of Canada B. M. No. 32-A-----	<sup>1</sup> 705. 24
East Richford, Vt.; in base of international boundary monument 596; United States Coast and Geodetic Survey B. M. No. G-2, 1922-----	<sup>2</sup> 510. 6

<sup>1</sup> Adjusted elevations published in 1913, 1916, and 1917.<sup>2</sup> Preliminary elevation, subject to correction by final adjustment.



Abercorn, Quebec, 1 mile south of; in the east face of concrete culvert under Canadian Pacific Railway, 250 feet north of a diagonal highway crossing, at mileage 25.8 from Enlaugra, Quebec; Geodetic Survey of Canada B. M. No. 55-----	Elevation (feet) <sup>1</sup> 492. 53
St. Armand, Quebec, 1¼ miles south of; in small granite boulder 20 feet west of Central Vermont Railway track, 190 feet south of international boundary monument 627-A; Geodetic Survey of Canada B. M. No. 70-----	<sup>1</sup> 108. 16
Monument 627-A, in base of; United States Coast and Geodetic Survey B. M. No. O-1, 1922-----	<sup>2</sup> 114. 5
THE NEW YORK-QUEBEC LINE	
Rouses Point, N. Y., on the water table on the north side of Chapman Block building, 20.6 feet west of the northeast corner, on the west side of Lake Street and on the south side of Chapman Street, 1.6 feet above the ground; United States Coast and Geodetic Survey bench mark consisting of a cross and circle-----	107. 95
Monument 647; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 114"-----	113. 66
Monument 648; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 124"-----	123. 88
Monument 650; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 205"-----	204. 59
Monument 651-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 266"-----	265. 62
Monument 653; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 184"-----	184. 29
Monument 654; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 213"-----	212. 98
Monument 657-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 173"-----	173. 38
Monument 660; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 265"-----	264. 94
Monument 661; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 354"-----	354. 36
Monument 665-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 292"-----	291. 67
Monument 668; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 321"-----	321. 23
Monument 674; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 295"-----	294. 55
Monument 676-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 335"-----	334. 44
Monument 679-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 516"-----	515. 85
Monument 682; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 757"-----	756. 76
Monument 688; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 935"-----	934. 62
Monument 692; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 1094"-----	1, 093. 82

<sup>1</sup> Adjusted elevations published in 1913, 1916, and 1917.

<sup>2</sup> Preliminary elevation, subject to correction by final adjustment.

	Elevation (feet)
Monument 695-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 1027"-----	1, 026. 73
Monument 699-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 873"-----	873. 27
Monument 703; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 747"-----	746. 83
Monument 706-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 645"-----	644. 35
Monument 711; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 531"-----	531. 07
Monument 714; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 468"-----	467. 99
Monument 719; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 390"-----	389. 90
Thayers Corners, N. Y., 5.06 miles north of; 0.21 mile west of turn in road; in George Marsh's barnyard, 50 feet south of barn, in granite boulder; United States Geological Survey bronze bench mark disk stamped "393"-----	392. 52
Monument 721; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 371"-----	371. 17
Monument 722-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 331"-----	330. 97
Thayers Corners, N. Y., 8.07 miles northwest of; opposite Luke Fee's farmhouse, 3,400 feet south by east of monument 726; 35 feet south of road, in sandstone boulder; United States Geological Survey bronze bench mark stamped "309"-----	308. 60
Monument 726-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 288"-----	287. 93
Monument 727-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 266"-----	266. 18
Monument 735; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 224"-----	223. 28
Monument 735; in east side of concrete base of; United States Geological Survey Trout River bench mark; bronze disk stamped "N. Y. 224"-----	223. 18
Monument 742; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 195"-----	194. 34
Monument 746; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 199"-----	198. 84
Monument 748; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 208"-----	207. 75
Monument 751-A; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 169"-----	168. 52
Monument 752; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 189"-----	189. 10
Monument 754; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 161"-----	160. 50
Monument 755; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 160"-----	159. 40
Monument 760; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 163"-----	163. 04

	Elevation (feet)
Monument 766; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 163" -----	162. 77
Monument 770; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 159" -----	158. 81
Hogansburg, N. Y.; in foundation wall of St. Patrick's Church; $\frac{1}{4}$ -inch bolt (Deep Waterways P. B. M. "B.") -----	178. 26
Monument 771; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 167" -----	166. 37
Monument 773; in south side of concrete base of; bronze disk marked "U. S. & C. B. Survey B. M. 188" -----	188. 10



## APPENDIX V

### GEOGRAPHIC POSITIONS AND DESCRIPTIONS OF TRIANGULATION AND TRAVERSE STATIONS

#### EXPLANATION OF TABLES

These tables consist of the triangulation stations and traverse stations used in determining the positions of the boundary monuments, reference monuments, and turning points. The latitude and longitude of each station are given on North American datum (see p. 138). Along with the latitude and longitude of each station, the azimuths and distances are given of lines from that station to other stations of the triangulation. No azimuths or distances are repeated, and for a given line the azimuth and distance will be found opposite the position of the last mentioned of the two stations involved.

The azimuths are reckoned clockwise from the south (see p. 138).

The distances are all reduced to sea level (see p. 138).

To facilitate the use of the tables, a column is given of the logarithms of the distances. It should be noted that the logarithm is derived from the computations and that the distances given are derived from the corresponding logarithms.

The latitudes and longitudes of the stations in the schemes used for the principal control are given to thousandths of seconds, and to hundredths of seconds in the other schemes. In the columns giving azimuths, distances, and logarithms of distances, the accuracy is indicated to a certain extent by the number of decimal places given.

These tables may be conveniently consulted by using as finders the sketches accompanying the report, published under separate cover, and the index to geographic positions beginning on page 485.

The following abbreviations have been used throughout the tables: "Mon." for monument; "Ref." for reference; and "ecc." for eccentric station.

#### GEOGRAPHIC POSITIONS OF TRIANGULATION STATIONS, SOURCE OF THE ST. CROIX RIVER TO LAKE POHENAGAMOOK

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MAJOR SCHEME						
	°   '   ''	°   '   ''	°   '   ''			
Spring Hill (U. S. C. & G. S.)	45 54 31.207 67 50 48.366					
Kennedy (U. S. C. & G. S.)	45 56 15.695 67 43 29.399	71 12 41.4	251 07 26.0	Spring Hill-----	9,993.9	3.999734
Pole Hill (U. S. C. & G. S.)	45 57 18.400 67 46 59.789	293 06 44.3	113 09 15.5	Kennedy-----	4,927.8	3.692654
Union-----	46 04 50.355 67 46 11.196	4 17 19.6 17 21 25.2 347 37 39.0	184 16 44.5 197 18 05.8 167 39 35.4	Pole Hill----- Spring Hill----- Kennedy-----	13,993.4 20,025.3 16,267.1	4.145922 4.301578 4.211310
Linneus-----	46 01 57.375 67 58 09.161	250 50 23.5 299 02 05.2 300 48 35.5 325 23 32.8	70 59 00.5 119 12 37.9 120 56 36.9 145 28 49.7	Union----- Kennedy----- Pole Hill----- Spring Hill-----	16,331.5 21,676.3 16,784.0 16,728.0	4.213027 4.335985 4.224896 4.223444

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MAJOR SCHEME—CON.						
	° ' "	° ' "	° ' "			
Ludlow	46 09 09.147 67 56 56.349	6 41 57.3 299 54 40.1	186 41 04.8 120 02 25.1	Linneus Union	13,422.7 15,992.6	4.127840 4.203918
Richmond	46 08 12.266 67 45 45.973	4 58 07.0 54 08 09.5 97 01 35.8	184 57 48.8 233 59 14.1 276 53 32.4	Union Linneus Ludlow	6,257.7 19,721.7 14,494.5	3.796412 4.294945 4.161202
Littleton	46 13 09.919 67 52 43.165	36 10 09.9 315 43 21.4	216 07 07.2 135 48 22.4	Ludlow Richmond	9,205.9 12,827.2	3.964068 4.108131
Wakefield	46 13 27.758 67 43 06.988	19 18 31.6 65 54 19.5 87 30 13.9	199 16 36.9 245 44 21.0 267 23 17.9	Richmond Ludlow Littleton	10,320.8 19,495.9 12,361.0	4.013712 4.289943 4.092052
Monticello	46 20 34.271 67 51 37.291	5 52 32.0 320 16 17.3	185 51 44.4 140 22 26.1	Littleton Wakefield	13,792.4 17,110.7	4.139640 4.233268
Wilmot	46 21 38.849 67 42 01.715	5 16 15.6 41 12 38.1 80 51 16.1	185 15 28.4 221 04 54.4 260 44 19.6	Wakefield Littleton Monticello	15,227.5 20,867.7 12,467.1	4.182630 4.319475 4.095767
Blaine	46 28 22.838 67 56 56.300	303 03 06.4 334 44 58.0	123 13 54.5 154 48 49.1	Wilmot Monticello	22,816.6 15,992.4	4.358251 4.203913
Wicklow	46 29 32.793 67 41 21.842	3 20 01.3 38 23 08.9 83 54 32.8	183 19 32.4 218 15 43.1 263 43 15.1	Wilmot Monticello Blaine	14,659.0 21,195.4 20,049.0	4.166104 4.326242 4.302093
Mars Hill	46 31 16.599 67 48 51.604	62 36 54.9 288 26 14.2 333 49 56.1	242 31 03.3 108 31 40.5 153 54 53.2	Blaine Wicklow Wilmot	11,645.6 10,110.9 19,869.7	4.066163 4.004788 4.298192
Andover	46 37 44.632 67 46 51.749	12 02 12.5 36 39 08.8 335 08 13.7	192 00 45.5 216 31 49.9 155 12 13.3	Mars Hill Blaine Wicklow	12,250.6 21,605.5 16,734.0	4.088158 4.334564 4.223600
Presque Isle	46 37 44.987 67 58 44.397	269 58 09.8 313 28 24.4 352 25 55.2	90 06 47.9 133 35 35.0 172 27 13.7	Andover Mars Hill Blaine	15,160.2 17,411.7 17,510.2	4.180706 4.240841 4.243292
Caribou	46 47 16.161 67 56 40.953	8 28 08.3 324 35 48.8	188 26 38.2 144 42 57.7	Presque Isle Andover	17,831.3 21,635.8	4.251182 4.335173
Aroostook	46 47 08.384 67 46 43.137	0 36 10.8 41 26 32.9 91 08 43.7	180 36 04.5 221 17 47.9 271 01 28.0	Andover Presque Isle Caribou	17,409.1 23,182.0 12,682.7	4.240777 4.365151 4.103211
Limestone	46 54 34.240 67 52 38.061	20 51 07.5 331 19 16.8	200 48 10.3 151 23 35.8	Caribou Aroostook	14,473.6 15,687.7	4.160576 4.195560
Woodland	46 54 42.667 68 05 31.210	270 49 57.9 300 17 46.6 320 46 25.5	90 59 22.5 120 31 29.6 140 52 52.3	Limestone Aroostook Caribou	16,363.8 27,713.0 17,785.3	4.213885 4.442684 4.250062
Connor	47 01 46.467 67 58 35.041	33 57 06.1 330 28 51.0	213 52 01.9 150 33 12.0	Woodland Limestone	15,769.2 15,333.0	4.197809 4.185626
Caswell	47 01 52.686 67 49 21.416	17 05 15.1 57 09 53.2 89 06 54.4	197 02 51.3 236 58 04.2 269 00 09.3	Limestone Woodland Connor	14,163.2 24,425.1 11,691.5	4.151161 4.387837 4.067872
Van Buren	47 08 16.885 68 01 18.859	308 01 21.7 343 59 24.7	128 10 07.2 164 01 24.7	Caswell Connor	19,230.0 12,542.0	4.283980 4.098366
St. Leonard	47 12 20.246 67 52 56.558	20 03 55.4 54 39 32.2 346 48 24.2	199 59 47.4 234 33 23.8 166 51 01.9	Connor Van Buren Caswell	20,832.1 12,976.1 19,903.5	4.318733 4.113145 4.298929
Grand Isle	47 12 50.674 68 07 24.569	272 51 22.7 317 38 05.5	93 01 59.7 137 42 33.7	St. Leonard Van Buren	18,290.9 11,436.5	4.262236 4.058294

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MAJOR SCHEME—con.						
	° ' "	° ' "	° ' "			
Ste. Anne-----	47 16 16.423 68 00 06.178	5 54 17.7 55 28 20.1 308 51 53.6	185 53 24.3 235 22 58.2 128 57 09.0	Van Buren----- Grand Isle----- St. Leonard-----	14,887.8 11,197.4 11,612.5	4.172830 4.049116 4.064926
Van Buren south base.	47 11 43.981 67 58 54.962	169 54 41.4 261 31 08.0	349 53 49.1 81 35 30.9	Ste. Anne----- St. Leonard-----	8,545.9 7,626.4	3.931757 3.882319
Van Buren north base.	47 13 50.106 68 02 09.032	209 44 44.0 283 22 12.3 313 37 28.0	29 46 14.2 103 28 57.7 133 39 50.4	Ste. Anne----- St. Leonard----- Van Buren south base.	5,204.9 11,951.3 5,643.49	3.716413 4.077416 3.751548
Green River-----	47 22 56.680 68 07 55.554	321 23 05.7 331 16 29.5 336 38 13.2 358 00 16.9	141 28 50.8 151 23 07.5 156 42 28.7 178 00 39.7	Ste. Anne----- Van Buren south base. Van Buren north base. Grand Isle-----	15,809.3 23,677.3 18,382.1 18,726.2	4.198913 4.374333 4.264395 4.272449
Madawaska-----	47 17 52.081 68 17 28.253	231 54 03.8 277 34 35.0 306 11 29.5	52 01 04.9 97 47 20.6 126 18 52.8	Green River----- Ste. Anne----- Grand Isle-----	15,265.3 22,097.4 15,740.3	4.183706 4.344342 4.197013
Edmund-----	47 23 36.120 68 24 10.531	273 18 32.6 321 28 58.4	93 30 30.1 141 33 54.3	Green River----- Madawaska-----	20,485.3 13,571.6	4.311443 4.132632
St. Hilaire-----	47 20 12.942 68 25 07.953	190 51 49.6 256 45 24.6 294 12 30.4	10 52 31.8 76 58 04.0 114 18 08.3	Edmund----- Green River----- Madawaska-----	6,389.3 22,247.3 10,589.3	3.805454 4.347277 4.024868
Second-----	47 20 40.765 68 18 59.500	83 41 55.1 129 43 08.2 253 09 57.1	263 37 24.2 309 39 19.4 73 18 05.3	St. Hilaire----- Edmund----- Green River-----	7,782.4 8,480.2 14,550.5	3.891111 3.928406 4.162878
First-----	47 21 54.460 68 20 37.073	61 09 12.7 263 03 50.8 318 00 37.3	241 05 53.5 83 13 10.9 138 01 49.1	St. Hilaire----- Green River----- Second-----	6,492.5 16,091.4 3,061.5	3.812412 4.206594 3.485939
Edmundston astronomic.	47 22 07.185 68 19 26.597	75 07 26.8 347 58 09.1	255 06 35.0 167 58 29.0	First----- Second-----	1,530.1 2,728.8	3.184715 3.435971
Baker-----	47 21 38.867 68 31 22.326	248 09 59.8 288 37 17.5	68 15 17.5 108 41 52.9	Edmund----- St. Hilaire-----	9,755.2 8,293.8	3.989237 3.918755
Kent-----	47 16 00.188 68 29 47.983	169 16 55.1 216 58 32.7 257 23 34.4	349 15 45.7 37 01 58.5 77 32 37.8	Baker----- St. Hilaire----- Madawaska-----	10,645.3 9,774.2 15,925.4	4.027156 3.990083 4.202089
Ledges-----	47 13 27.961 68 42 15.590	222 05 28.9 253 16 37.9	42 13 28.9 73 25 46.8	Baker----- Kent-----	20,450.9 16,410.1	4.310712 4.215112
Long-----	47 20 37.804 68 47 51.084	264 42 24.4 290 32 11.9 331 59 30.2	84 54 31.6 110 45 27.9 152 03 36.7	Baker----- Kent----- Ledges-----	20,837.6 24,314.0 15,030.6	4.318847 4.385857 4.176976
Center-----	47 15 09.819 68 51 16.249	203 01 53.3 285 24 23.8	23 04 24.0 105 31 00.7	Long----- Ledges-----	11,007.9 11,798.8	4.041706 4.071836
St. Francis-----	47 10 07.931 68 51 46.465	183 53 55.5 194 15 03.4 242 44 09.0	3 54 17.7 14 17 56.2 62 51 07.8	Center----- Long----- Ledges-----	9,344.5 20,071.5 13,511.5	3.970557 4.302580 4.130705
Canadian Glazier-----	47 16 39.408 68 57 46.635	239 27 38.2 288 35 24.6 327 53 02.6	59 34 55.9 108 40 11.4 147 57 27.0	Long----- Center----- St. Francis-----	14,514.9 8,660.7 14,268.1	4.161815 3.937553 4.154366
U. S. Glazier-----	47 13 31.296 69 03 53.318	232 58 03.5 292 14 35.0	53 02 32.7 112 23 28.3	Canadian Glazier-- St. Francis-----	9,654.1 16,538.6	3.984710 4.218500



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude			Azimuth			Back azimuth			To station	Distance (meters)	Logarithm
MAJOR SCHEME—CON.												
	°	'	''	°	'	''	°	'	''			
Canadian Beau-----	47	20	17.713	13	07	33.3	193	05	51.1	U. S. Glazier-----	12, 887. 0	4. 110153
	69	01	34. 214	267	51	34. 2	88	01	39. 4	Long-----	17, 290. 6	4. 237811
				324	38	14. 3	144	41	01. 5	Canadian Glazier--	8, 264. 6	3. 917222
U. S. Beau-----	47	21	29. 511	285	43	03. 6	105	47	39. 0	Canadian Beau-----	8, 165. 7	3. 911993
	69	07	48. 631	305	15	39. 1	125	23	01. 6	Canadian Glazier--	15, 495. 4	4. 190203
				341	27	56. 4	161	30	49. 3	U. S. Glazier-----	15, 574. 1	4. 192402
Blue River-----	47	25	09. 790	47	42	57. 9	227	38	35. 7	U. S. Beau-----	10, 104. 1	4. 004497
	69	01	52. 427	357	34	22. 1	177	34	35. 5	Canadian Beau-----	9, 028. 2	3. 955602
Estcourt-----	47	29	14. 438	295	16	26. 2	115	25	47. 1	Blue River-----	17, 645. 7	4. 246640
	69	14	33. 667	315	19	46. 7	135	29	20. 6	Canadian Beau-----	23, 275. 8	4. 366904
				329	21	51. 4	149	26	49. 7	U. S. Beau-----	16, 680. 3	4. 222205
Frontier (Mon. 189) (Geodetic Survey of Canada).	47	22	40. 457	202	26	11. 2	22	29	08. 0	Estcourt-----	13, 166. 1	4. 119458
	69	18	33. 699	257	30	33. 7	77	42	50. 8	Blue River-----	21, 496. 9	4. 332375
				279	07	45. 6	99	15	40. 2	U. S. Beau-----	13, 710. 8	4. 137064
Parke (Geodetic Sur- vey of Canada).	47	34	37. 493	313	14	25. 7	133	20	39. 3	Estcourt-----	14, 549. 8	4. 162858
	69	22	59. 976	345	50	26. 7	165	53	43. 0	Frontier (Mon.189)	22, 835. 5	4. 358611
Chabot-----	47	29	11. 298	186	35	07. 8	6	35	48. 8	Parke-----	10, 141. 1	4. 006085
	69	23	55. 628	269	28	13. 4	89	35	07. 7	Estcourt-----	11, 764. 8	4. 070586
				330	45	54. 0	150	49	51. 1	Frontier (Mon.189)	13, 827. 8	4. 140753
POINTS SUPPLEMEN- TARY TO MAJOR SCHEME												
Mon. 1 (initial mon- ument).	45	56	37. 001	175	06	42. 4	355	06	38. 7	Pole Hill-----	1, 282. 8	3. 108175
	67	46	54. 713	278	26	22. 0	98	28	49. 5	Kennedy-----	4, 471. 4	3. 650440
Westford-----	46	02	16. 502	4	07	42. 2	184	07	07. 6	Spring Hill-----	14, 403. 2	4. 158460
	67	50	00. 258	322	54	08. 1	142	58	49. 3	Kennedy-----	13, 959. 5	4. 144870
				337	06	16. 0	157	08	25. 8	Pole Hill-----	9, 989. 8	3. 999556
Mon. 10-B-----	46	03	05. 013	0	40	45. 9	180	40	41. 6	Pole Hill-----	10, 702. 5	4. 029486
	67	46	53. 895	69	31	23. 3	249	29	09. 1	Westford-----	4, 277. 8	3. 631218
				340	46	47. 8	160	49	14. 9	Kennedy-----	13, 382. 1	4. 126524
Mon. 16-----	46	06	45. 899	108	57	52. 4	288	50	38. 6	Ludlow-----	13, 651. 4	4. 135177
	67	46	54. 719	147	48	17. 5	327	44	06. 1	Littleton-----	14, 016. 8	4. 146650
Mon. 24-B-----	46	13	01. 046	92	08	39. 7	272	04	29. 1	Littleton-----	7, 442. 5	3. 871718
	67	46	56. 164	260	26	43. 2	80	29	28. 6	Wakefield-----	4, 980. 6	3. 697282
				350	24	31. 7	170	25	22. 3	Richmond-----	9, 042. 6	3. 956295
				359	50	48. 1	179	50	49. 1	Mon. 16-----	11, 583. 1	4. 063825
Porter-----	46	19	20. 899	21	07	31. 1	201	05	01. 9	Littleton-----	12, 278. 2	4. 089135
	67	49	16. 700	127	00	28. 3	306	58	46. 6	Monticello-----	3, 764. 9	3. 575759
				323	58	58. 1	144	03	25. 3	Wakefield-----	13, 474. 4	4. 129511
Lunnon-----	46	17	24. 243	40	46	13. 2	220	42	25. 1	Littleton-----	10, 363. 8	4. 015521
	67	47	27. 396	137	41	05. 7	317	38	05. 0	Monticello-----	7, 938. 1	3. 899715
				147	00	46. 3	326	59	27. 3	Porter-----	4, 294. 8	3. 632946
Mon. 26-----	46	13	10. 774	165	16	16. 9	345	14	35. 4	Porter-----	11, 817. 3	4. 072518
	67	46	56. 259	263	53	07. 0	83	55	52. 6	Wakefield-----	4, 941. 7	3. 693874
Mon. 35-A-----	46	18	33. 376	15	42	34. 0	195	42	13. 7	Lunnon-----	2, 217. 4	3. 345849
	67	46	59. 348	116	32	53. 3	296	31	14. 0	Porter-----	3, 284. 7	3. 516494
Mon. 44-----	46	25	05. 235	34	48	54. 0	214	45	37. 1	Monticello-----	10, 187. 4	4. 008064
	67	47	05. 310	115	52	19. 0	295	45	10. 6	Blaine-----	14, 012. 7	4. 146522
				168	49	25. 5	348	48	08. 4	Mars Hill-----	11, 689. 0	4. 067777
Mon. 53-----	46	30	19. 975	73	53	17. 4	253	46	13. 2	Blaine-----	12, 987. 1	4. 113518
	67	47	11. 465	129	19	44. 4	309	18	31. 8	Mars Hill-----	2, 759. 4	3. 440818

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME—contd.						
	° ' "	° ' "	° ' "			
Easton.....	46 40 27.327	204 19 26.7	24 22 38.9	Aroostook.....	13,593.6	4.133336
	67 51 07.104	312 44 58.8	132 48 04.4	Andover.....	7,397.5	3.869085
Watson.....	46 46 01.283	256 26 07.4	76 31 03.3	Aroostook.....	8,860.8	3.947474
	67 53 29.218	331 07 15.5	151 12 04.7	Andover.....	17,507.4	4.243221
		343 40 20.6	163 42 04.1	Easton.....	10,744.9	4.031201
Mon. 64.....	46 36 56.829	143 26 24.9	323 23 40.0	Easton.....	8,094.6	3.908194
	67 47 20.261	202 20 17.0	22 20 37.7	Andover.....	1,595.9	3.202999
Mon. 72-A.....	46 42 21.917	53 28 24.7	233 25 41.3	Easton.....	5,941.8	3.773918
	67 47 22.467	131 03 32.0	310 59 05.0	Watson.....	10,320.6	4.013703
		355 38 08.2	175 38 30.5	Andover.....	8,587.1	3.933847
Mon. 81-B.....	46 47 33.365	69 50 00.9	249 45 35.5	Watson.....	8,233.5	3.915583
	67 47 24.983	310 59 24.0	130 59 54.5	Aroostook.....	1,175.9	3.070380
Falls.....	46 52 11.925	5 32 06.5	185 31 35.3	Aroostook.....	9,417.1	3.973917
	67 46 00.315	117 36 01.9	297 31 11.5	Limestone.....	9,498.4	3.977649
		166 40 50.2	346 38 23.3	Caswell.....	18,431.4	4.265559
Mon. 92.....	46 52 16.412	274 26 24.3	94 27 25.6	Falls.....	1,786.2	3.251935
	67 47 24.403	354 44 32.0	174 45 02.1	Aroostook.....	9,551.9	3.980091
Mon. 103.....	46 58 49.980	39 58 16.9	219 54 28.4	Limestone.....	10,300.2	4.012844
	67 47 25.398	156 31 55.5	336 30 30.7	Caswell.....	6,151.4	3.788974
Grand.....	47 06 03.159	1 21 06.5	181 21 00.2	Caswell.....	7,737.0	3.888574
	67 49 12.774	105 10 22.6	285 01 30.5	Van Buren.....	15,853.3	4.200121
Hamlin.....	47 06 21.082	112 14 43.5	292 09 38.8	Van Buren.....	9,463.4	3.976045
	67 54 23.205	189 20 11.7	9 21 15.1	St. Leonard.....	11,240.7	4.050793
		274 48 05.7	94 51 53.1	Grand.....	6,569.3	3.817517
Cyr.....	47 06 54.433	40 36 27.5	220 31 44.9	Connor.....	12,519.7	4.097594
	67 52 09.129	69 59 41.8	249 58 03.6	Hamlin.....	3,008.6	3.478362
		102 26 58.7	282 20 15.8	Van Buren.....	11,863.3	4.074205
		339 11 21.4	159 13 24.2	Caswell.....	9,967.5	3.998588
Ref. Mon. S-2.....	47 04 09.923	133 39 42.9	313 36 37.9	Cyr.....	7,361.9	3.866988
	67 47 56.506	155 18 08.6	335 17 12.8	Grand.....	3,849.2	3.585367
Ref. Mon. S-6.....	47 04 51.704	113 24 52.5	293 21 10.8	Hamlin.....	6,954.3	3.842256
	67 49 20.548	136 50 55.3	316 48 51.8	Cyr.....	5,196.5	3.715708
		184 14 55.4	4 15 01.1	Grand.....	2,212.7	3.344923
Ref. Mon. S-17.....	47 07 19.368	26 33 41.0	206 33 09.7	Hamlin.....	2,012.2	3.303681
	67 53 40.532	291 46 26.1	111 47 33.0	Cyr.....	2,075.0	3.317012
Bruno.....	47 09 45.084	64 38 25.9	244 35 06.2	Van Buren.....	6,353.0	3.802981
	67 56 46.430	312 01 04.3	132 04 27.6	Cyr.....	7,868.8	3.895908
Ref. Mon. C-22.....	47 09 31.984	107 22 32.4	287 21 47.4	Bruno.....	1,355.2	3.131993
	67 55 45.028	316 53 55.2	136 56 33.5	Cyr.....	6,661.2	3.823552
Ref. Mon. S-32.....	47 11 57.723	54 01 30.0	234 01 09.6	Van Buren south base.	722.4	2.858795
	67 58 27.188	165 24 08.0	345 22 55.3	Ste. Anne.....	8,256.0	3.916771
		264 15 30.5	84 19 33.0	St. Leonard.....	6,993.5	3.844697
Ref. Mon. S-42.....	47 15 26.598	166 10 45.1	346 08 45.2	Green River.....	14,315.1	4.155795
	68 05 12.526	256 31 54.1	76 35 39.1	Ste. Anne.....	6,621.6	3.820963
Ref. Mon. C-47.....	47 19 53.122	112 18 22.6	292 08 31.7	Edmund.....	18,207.7	4.260256
	68 10 47.297	212 25 51.3	32 27 57.6	Green River.....	6,717.5	3.827208
Ref. Mon. C-54.....	47 21 33.492	34 42 20.9	214 41 41.4	Second.....	1,980.6	3.296796
	68 18 05.778	74 21 44.6	254 16 34.2	St. Hilaire.....	9,203.9	3.963970
		101 32 38.2	281 30 46.9	First.....	3,240.1	3.510565

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME—contd.						
	° ' "	° ' "	° ' "			
Edmundston bench mark.	47 22 02.632 68 19 18.482	81 18 26.2 351 02 38.0	261 17 28.4 171 02 52.0	First..... Second....	1,668.2 2,559.4	3.222257 3.408146
Brook.....	47 17 27.342 68 30 09.184	168 49 22.1 231 01 11.4 267 11 11.5 350 35 50.5	348 48 28.3 51 04 52.8 87 20 30.6 170 36 06.1	Baker..... St. Hilaire..... Madawaska..... Kent.....	7,918.1 8,135.3 16,006.1 2,728.1	3.898620 3.910373 4.204286 3.435863
Ref. Mon. S-69....	47 16 57.189 68 22 29.619	95 33 16.7 151 11 57.0	275 27 38.9 331 10 00.6	Brook..... St. Hilaire....	9,702.1 6,899.8	3.986865 3.838834
Clair.....	47 15 51.977 68 38 53.629	43 42 09.1 128 04 25.9 221 27 27.5 268 40 40.7	223 39 40.8 307 57 50.9 41 32 59.2 88 47 21.5	Ledges..... Long..... Baker..... Kent.....	6,149.7 14,331.4 14,304.4 11,473.6	3.788857 4.156288 4.155470 4.059700
Fort.....	47 13 11.365 68 37 18.355	94 42 58.8 158 00 42.0 241 07 28.3	274 39 20.7 337 59 32.1 61 12 59.0	Ledges..... Clair..... Kent.....	6,274.6 5,349.5 10,812.0	3.797589 3.728311 4.033904
Baker Brook bench mark.	47 18 06.550 68 30 47.612	67 54 31.7 173 39 37.8 326 18 01.0	247 48 34.7 353 39 12.3 146 18 29.3	Clair..... Baker..... Brook.....	11,027.0 6,597.3 1,455.3	4.042458 3.819363 3.162959
Ref. Mon. S-78....	47 17 39.484 68 30 57.620	71 41 22.3 175 59 18.5	251 35 32.6 355 59 00.3	Clair..... Baker.....	10,540.8 7,410.9	4.022873 3.869871
Ref. Mon. S-87....	47 16 03.164 68 35 36.125	22 04 12.7 85 15 49.5	202 02 57.6 265 13 24.5	Fort..... Clair.....	5,724.6 4,166.3	3.757743 3.619753
Ref. Mon. S-96....	47 13 52.417 68 40 30.218	208 48 23.8 287 25 00.2	28 49 34.7 107 27 21.0	Clair..... Fort.....	4,214.1 4,230.9	3.624704 3.626430
Ref. Mon. C-92....	47 14 57.124 68 43 24.401	49 50 41.9 292 56 54.5 332 15 50.9	229 44 33.5 113 01 23.1 152 16 41.4	St. Francis..... Fort..... Ledges.....	13,834.6 8,363.7 3,110.7	4.140966 3.922398 3.492853
Ref. Mon. C-99....	47 12 46.841 68 49 32.873	29 49 47.8 262 05 48.6	209 48 09.8 82 11 09.5	St. Francis..... Ledges.....	5,656.2 9,288.1	3.752521 3.967927
Ref. Mon. C-105...	47 11 18.158 68 52 49.901	253 13 17.0 328 21 50.8	73 21 02.4 148 22 37.3	Ledges..... St. Francis.....	13,938.5 2,547.1	4.144215 3.406045
Twin.....	47 13 01.750 69 02 07.502	112 17 44.8 155 28 03.4 182 58 16.8	292 16 27.2 335 23 52.8 2 58 41.3	U. S. Glazier..... U. S. Beau..... Canadian Beau..	2,406.1 17,241.6 13,481.7	3.381312 4.236577 4.129743
Ref. Mon. S-122....	47 14 17.556 69 01 50.712	8 34 53.8 61 01 47.4	188 34 41.4 241 00 17.4	Twin..... U. S. Glazier.....	2,367.5 2,948.3	3.374295 3.469579
Ref. Mon. S-135....	47 20 36.417 69 03 40.138	194 58 17.5 282 18 46.4	14 59 36.8 102 20 19.0	Blue River..... Canadian Beau....	8,739.6 2,705.8	3.941493 3.432302
Dave.....	47 26 15.590 69 05 36.909	17 22 30.3 67 53 11.1 116 13 13.8 293 20 17.9	197 20 53.3 247 43 39.2 296 06 38.2 113 23 03.2	U. S. Beau..... Frontier (Mon.189) Estcourt..... Blue River.....	9,256.7 17,589.2 12,525.6 5,124.8	3.966455 4.245247 4.097798 3.709674
Ref. Mon. C-139....	47 23 59.575 69 02 11.959	134 22 36.0 190 41 33.0	314 20 05.1 10 41 47.4	Dave..... Blue River.....	6,008.4 2,206.8	3.778759 3.343754
Ref. Mon. C-162....	47 25 54.096 69 05 53.095	119 37 32.4 207 03 48.2 285 09 09.0	299 31 08.7 27 04 00.1 105 12 06.2	Estcourt..... Dave..... Blue River.....	12,536.8 745.4 5,226.5	4.098185 2.872413 3.718207
Ref. Mon. C-176....	47 27 47.005 69 13 18.826	34 54 53.1 149 52 41.6	214 51 01.3 329 51 46.5	Frontier (Mon.189) Estcourt.....	11,540.7 3,122.0	4.062231 3.494435



## GEOGRAPHIC POSITIONS OF TRIANGULATION STATIONS

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## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS	° ' "	° ' "	° ' "			
S-1-----	47 03 58.03 67 47 27.16					
C-1-----	47 04 05.75 67 47 21.52	26 32 04	206 32 00	S-1-----	266.4	2.425567
Ref. Mon. S-2-----	47 04 09.92 67 47 56.51	279 54 06 300 40 09	99 54 32 120 40 31	C-1----- S-1-----	749.4 720.0	2.874721 2.857311
C-2-----	47 04 18.27 67 47 52.50	18 10 01 300 36 05 319 27 08	198 09 58 120 36 28 139 27 27	Ref. Mon. S-2----- C-1----- S-1-----	271.2 759.4 822.5	2.433366 2.880496 2.915128
Ref. Mon. C-3-----	47 04 24.86 67 48 13.27	294 55 09 322 31 09	114 55 24 142 31 21	C-2----- Ref. Mon. S-2-----	483.3 581.4	2.684247 2.764481
Ref. Mon. S-3-----	47 04 17.38 67 48 21.09	215 31 02 267 23 24 293 55 55	35 31 08 87 23 45 113 56 13	Ref. Mon. C-3----- C-2----- Ref. Mon. S-2-----	284.0 603.9 567.6	2.453275 2.780995 2.754016
Ref. Mon. S-4-----	47 04 31.34 67 48 46.33	286 00 10 308 59 50	106 00 34 129 00 08	Ref. Mon. C-3----- Ref. Mon. S-3-----	725.6 685.2	2.860692 2.835817
C-4-----	47 04 37.49 67 48 39.30	38 02 20 305 22 17 328 15 37	218 02 15 125 22 36 148 15 50	Ref. Mon. S-4----- Ref. Mon. C-3----- Ref. Mon. S-3-----	240.9 673.3 730.1	2.381806 2.828222 2.863386
Ref. Mon. S-5-----	47 04 42.29 67 48 58.42	290 11 03 322 57 52	110 11 17 142 58 01	C-4----- Ref. Mon. S-4-----	429.9 423.5	2.633361 2.626845
C-5-----	47 04 54.23 67 48 55.21	10 24 04 327 00 06 345 09 11	190 24 02 147 00 18 165 09 18	Ref. Mon. S-5----- C-4----- Ref. Mon. S-4-----	374.9 616.6 731.3	2.573969 2.789991 2.864072
Ref. Mon. S-6-----	47 04 51.70 67 49 20.55	261 41 06 301 54 43	81 41 25 121 55 00	C-5----- Ref. Mon. S-5-----	540.1 549.9	2.732490 2.740279
C-6 (Grand Falls east base).	47 05 11.95 67 49 26.09	310 01 21 349 24 14	130 01 44 169 24 18	C-5----- Ref. Mon. S-6-----	850.6 636.0	2.929728 2.803443
Ref. Mon. S-7-----	47 05 02.04 67 49 44.34	231 31 08 283 05 10 302 26 25	51 31 21 103 05 46 122 26 42	C-6----- C-5----- Ref. Mon. S-6-----	491.8 1,064.1 594.8	2.691823 3.026972 2.774391
C-7 (Grand Falls west base).	47 05 23.34 67 50 13.02	289 33 46 317 24 04	109 34 20 137 24 25	C-6----- Ref. Mon. S-7-----	1,050.53 893.7	3.021407 2.951182
Ref. Mon. S-8-----	47 05 09.61 67 50 31.84	223 06 36 267 00 49 283 08 01	43 06 50 87 01 37 103 08 36	C-7----- C-6----- Ref. Mon. S-7-----	580.8 1,388.7 1,028.8	2.764060 3.142623 3.012332
C-8-----	47 05 43.32 67 51 03.80	299 56 14 327 04 21	119 56 51 147 04 44	C-7----- Ref. Mon. S-8-----	1,235.9 1,240.1	3.091970 3.093438
Ref. Mon. S-9-----	47 05 23.88 67 51 16.02	203 14 41 270 42 48 295 18 26	23 14 50 90 43 34 115 18 58	C-8----- C-7----- Ref. Mon. S-8-----	653.2 1,328.9 1,030.8	2.815038 3.123486 3.013184
Ref. Mon. S-10-----	47 05 46.98 67 51 53.35	276 10 51 312 10 34	96 11 28 132 11 02	C-8----- Ref. Mon. S-9-----	1,051.2 1,062.5	3.021698 3.026335
C-9-----	47 06 01.98 67 51 45.51	19 40 03 303 13 24 332 08 04	199 39 58 123 13 55 152 08 27	Ref. Mon. S-10----- C-8----- Ref. Mon. S-9-----	491.6 1,051.5 1,330.6	2.691626 3.021826 3.124058
C-10-----	47 06 05.06 67 52 00.86	286 21 31 344 09 01	106 21 42 164 09 06	C-9----- Ref. Mon. S-10-----	337.5 580.1	2.528300 2.763473

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
Ref. Mon. S-11-----	47 05 56.69 67 52 18.17	234 41 56 256 39 25 299 47 02	54 42 09 76 39 49 119 47 20	C-10----- C-9----- Ref. Mon. S-10----	447.2 707.9 603.1	2.650498 2.849998 2.780384
Ref. Mon. C-11-----	47 06 12.94 67 52 45.83	284 24 18 310 43 05	104 24 51 130 43 25	C-10----- Ref. Mon. S-11----	979.0 769.5	2.990775 2.886235
Ref. Mon. S-12-----	47 06 03.41 67 52 57.97	221 00 00 267 34 50 283 53 41	41 00 09 87 35 32 103 54 10	Ref. Mon. C-11--- C-10----- Ref. Mon. S-11----	390.1 1,205.2 864.5	2.591133 3.081055 2.936757
Ref. Mon. S-13-----	47 06 10.02 67 53 11.23	260 25 11 306 06 23	80 25 30 126 06 33	Ref. Mon. C-11--- Ref. Mon. S-12----	543.2 346.2	2.734921 2.539302
C-12-----	47 06 17.58 67 52 52.80	13 58 11 58 59 34 314 13 36	193 58 08 238 59 21 134 13 42	Ref. Mon. S-12---- Ref. Mon. S-13---- Ref. Mon. C-11---	450.9 453.3 205.2	2.654044 2.656377 2.312243
C-13-----	47 06 27.83 67 53 03.54	16 25 57 324 25 29	196 25 52 144 25 37	Ref. Mon. S-13---- C-12-----	573.3 389.0	2.758419 2.589962
Ref. Mon. S-14-----	47 06 17.22 67 53 24.88	233 57 17 269 03 32 307 41 43	53 57 33 89 03 56 127 41 54	C-13----- C-12----- Ref. Mon. S-13----	556.6 676.4 363.8	2.745516 2.830231 2.560857
Ref. Mon. S-15-----	47 06 33.76 67 53 26.32	290 52 28 356 36 27	110 52 45 176 36 28	C-13----- Ref. Mon. S-14----	514.0 511.6	2.710981 2.708890
C-14-----	47 06 37.79 67 53 13.72	20 19 24 64 51 25 325 06 00	200 19 16 244 51 16 145 06 08	Ref. Mon. S-14---- Ref. Mon. S-15---- C-13-----	677.5 293.3 375.3	2.830886 2.467368 2.574390
C-15-----	47 06 55.47 67 53 16.00	17 58 02 354 57 33	197 57 55 174 57 35	Ref. Mon. S-15---- C-14-----	704.8 547.9	2.848049 2.738689
Ref. Mon. S-16-----	47 06 57.83 67 53 30.18	283 42 30 330 42 22 353 44 17	103 42 40 150 42 34 173 44 20	C-15----- C-14----- Ref. Mon. S-15----	307.7 709.4 747.8	2.488128 2.850890 2.873783
C-16-----	47 07 22.13 67 53 17.77	19 14 04 357 25 00	199 13 55 177 25 01	Ref. Mon. S-16---- C-15-----	794.7 824.1	2.900182 2.915965
Ref. Mon. S-17-----	47 07 19.37 67 53 40.53	259 56 03 324 59 14 341 50 45	79 56 20 144 59 32 161 50 53	C-16----- C-15----- Ref. Mon. S-16----	487.3 901.1 700.0	2.687823 2.954794 2.845095
Ref. Mon. C-17-----	47 07 56.27 67 53 44.89	331 32 08 355 23 41	151 32 28 175 23 44	C-16----- Ref. Mon. S-17----	1,199.3 1,143.2	3.078939 3.058130
Ref. Mon. S-18-----	47 07 50.31 67 53 57.47	235 14 42 316 07 33 339 30 55	55 14 51 136 08 02 159 31 07	Ref. Mon. C-17--- C-16----- Ref. Mon. S-17----	322.7 1,207.4 1,020.1	2.508814 3.081841 3.008626
Ref. Mon. S-19-----	47 08 04.87 67 54 15.23	292 32 39 320 12 23	112 33 01 140 12 36	Ref. Mon. C-17--- Ref. Mon. S-18----	692.4 585.0	2.840375 2.767127
C-18-----	47 08 15.41 67 54 00.14	44 20 28 331 27 51 355 50 57	224 20 17 151 28 02 175 50 59	Ref. Mon. S-19--- Ref. Mon. C-17--- Ref. Mon. S-18----	455.2 672.8 777.0	2.658158 2.827859 2.890441
Ref. Mon. S-20-----	47 08 31.53 67 54 31.73	306 47 14 337 06 22	126 47 37 157 06 34	C-18----- Ref. Mon. S-19----	831.4 893.8	2.919786 2.951249
C-19-----	47 08 31.48 67 54 14.40	1 13 25 90 13 27 328 48 37	181 13 24 270 13 14 148 48 47	Ref. Mon. S-19--- Ref. Mon. S-20---- C-18-----	822.2 365.2 580.4	2.914973 2.562561 2.763691

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
C-20-----	47 08 58.80 67 54 39.40	328 00 48 349 08 00	148 01 07 169 08 06	C-19----- Ref. Mon. S-20---	994.7 857.7	2.997690 2.933313
Ref. Mon. S-21-----	47 08 51.61 67 54 53.85	233 51 26 306 46 31 323 03 50	53 51 37 126 47 01 143 04 07	C-20----- C-19----- Ref. Mon. S-20---	376.9 1,037.9 775.6	2.576227 3.016142 2.889660
C-21-----	47 09 17.24 67 55 21.66	302 35 36 323 29 23	122 36 07 143 29 43	C-20----- Ref. Mon. S-21---	1,056.7 984.8	3.023940 2.993344
Ref. Mon. S-22-----	47 09 09.60 67 55 37.80	235 16 07 285 09 37 300 58 02	55 16 19 105 10 20 120 58 34	C-21----- C-20----- Ref. Mon. S-21---	413.8 1,274.8 1,080.0	2.616828 3.105430 3.033428
Ref. Mon. S-23-----	47 09 22.75 67 55 54.38	283 52 17 319 17 42	103 52 41 139 17 54	C-21----- Ref. Mon. S-22---	710.1 535.6	2.851325 2.728853
Ref. Mon. C-22-----	47 09 31.98 67 55 45.03	34 39 19 312 46 03 347 34 48	214 39 12 132 46 20 167 34 53	Ref. Mon. S-23--- C-21----- Ref. Mon. S-22---	346.6 670.6 707.7	2.539815 2.826476 2.849856
Ref. Mon. S-24-----	47 09 45.34 67 56 18.76	300 08 05 323 38 31	120 08 30 143 38 49	Ref. Mon. C-22--- Ref. Mon. S-23---	821.6 866.2	2.914676 2.937640
C-23-----	47 09 52.01 67 56 03.14	57 57 27 328 19 47 348 27 42	237 57 15 148 20 00 168 27 48	Ref. Mon. S-24--- Ref. Mon. C-22--- Ref. Mon. S-23---	388.2 726.7 922.2	2.589016 2.861345 2.964834
S-25-----	47 10 01.66 67 56 25.42	302 24 45 344 26 27	122 25 02 164 26 32	C-23----- Ref. Mon. S-24---	555.9 523.1	2.745031 2.718609
C-24-----	47 10 08.08 67 56 12.35	10 53 06 54 15 11 338 38 43	190 53 01 234 15 01 158 38 50	Ref. Mon. S-24--- S-25----- C-23-----	715.0 339.2 532.8	2.854310 2.530487 2.726540
C-25-----	47 10 34.84 67 56 30.57	335 05 28 353 57 32	155 05 42 173 57 36	C-24----- S-25-----	911.1 1,030.3	2.959560 3.012945
Ref. Mon. S-26-----	47 10 13.22 67 56 32.15	182 50 47 290 50 12 338 21 16	2 50 48 110 50 27 158 21 21	C-25----- C-24----- S-25-----	668.5 446.1 384.0	2.825089 2.649438 2.584280
Ref. Mon. S-27-----	47 10 25.40 67 56 48.42	232 13 54 317 40 28 326 32 55	52 14 07 137 40 40 146 33 12	C-25----- Ref. Mon. S-26--- S-25-----	475.6 509.1 878.8	2.677223 2.706787 2.943902
Ref. Mon. S-28-----	47 10 34.63 67 56 55.28	269 17 31 333 08 00	89 17 49 153 08 06	C-25----- Ref. Mon. S-27---	520.3 319.3	2.716240 2.504234
Ref. Mon. C-26-----	47 10 43.58 67 56 39.38	18 45 06 50 27 38 325 31 26	198 45 01 230 27 27 145 31 33	Ref. Mon. S-27--- Ref. Mon. S-28--- C-25-----	592.7 434.2 327.5	2.772861 2.637677 2.515256
C-27-----	47 10 55.48 67 56 51.20	7 35 34 325 53 30	187 35 32 145 53 39	Ref. Mon. S-28--- Ref. Mon. C-26---	649.7 444.0	2.812739 2.647381
Ref. Mon. S-29-----	47 10 50.93 67 57 08.88	249 19 00 290 04 55 330 22 22	69 19 13 110 05 17 150 22 33	C-27----- Ref. Mon. C-26--- Ref. Mon. S-28---	397.8 661.4 579.3	2.599683 2.820455 2.762882
Ref. Mon. S-30-----	47 11 05.40 67 57 22.22	295 07 18 327 49 53	115 07 41 147 50 03	C-27----- Ref. Mon. S-29---	721.4 527.8	2.858200 2.722503
C-28-----	47 11 15.02 67 56 57.56	17 45 03 60 13 17 347 28 27	197 44 55 240 12 59 167 28 32	Ref. Mon. S-29--- Ref. Mon. S-30--- C-27-----	781.1 598.1 618.1	2.892687 2.776771 2.791055



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
Keegan, Me., water tower.	47 11 16.51 67 57 17.36	16 36 02 276 17 49	196 35 59 96 18 04	Ref. Mon. S-30 C-28	358.0 419.3	2.553881 2.622574
Ref. Mon. C-29	47 11 49.94 67 57 13.55	4 27 00 342 40 13	184 26 57 162 40 25	Keegan water tower. C-28	1,035.4 1,129.6	3.015129 3.052928
S-31	47 11 32.13 67 57 42.04	227 28 26 312 52 18	47 28 47 132 52 36	Ref. Mon. C-29 Keegan water tower.	813.8 708.9	2.910512 2.850556
		333 10 53	153 11 08	Ref. Mon. S-30	924.8	2.966064
Tripod	47 11 46.11 67 57 41.70	0 56 58 258 42 20	180 56 58 78 42 41	S-31 Ref. Mon. C-29	431.8 604.3	2.635252 2.781245
Ref. Mon. S-32	47 11 57.72 67 58 27.19	278 48 23 290 31 50 309 44 36	98 49 17 110 32 23 129 45 09	Ref. Mon. C-29 Tripod S-31	1,568.6 1,022.5 1,236.1	3.195513 3.009658 3.092056
Ref. Mon. C-30	47 12 19.94 67 58 09.28	28 46 27 308 17 48 330 56 15	208 46 14 128 18 29 150 56 35	Ref. Mon. S-32 Ref. Mon. C-29 Tripod	782.9 1,494.9 1,195.4	2.893699 3.174624 3.077507
C-31	47 12 29.14 67 58 36.10	296 43 04 349 03 41	116 43 24 169 03 48	Ref. Mon. C-30 Ref. Mon. S-32	631.8 988.3	2.800554 2.994867
Ref. Mon. S-33	47 12 10.54 67 58 45.78	199 32 22 249 17 32 315 19 31	19 32 29 69 17 59 135 19 45	C-31 Ref. Mon. C-30 Ref. Mon. S-32	609.5 821.2 556.7	2.784978 2.914463 2.745630
S-34	47 12 25.78 67 59 12.00	262 09 43 310 26 47	82 10 09 130 27 06	C-31 Ref. Mon. S-33	762.7 725.1	2.882380 2.860405
Ref. Mon. C-32	47 12 36.07 67 59 03.71	28 46 24 290 13 19 334 26 04	208 46 18 110 13 39 154 26 17	S-34 C-31 Ref. Mon. S-33	362.8 619.2 874.0	2.559675 2.791797 2.941514
Ref. Mon. C-33	47 12 47.32 67 59 31.08	301 05 20 328 53 52	121 05 40 148 54 06	Ref. Mon. C-32 S-34	672.6 777.0	2.827761 2.890445
Ref. Mon. S-35	47 12 30.54 67 59 35.17	189 26 05 255 31 45 286 47 48	9 26 08 75 32 08 106 48 05	Ref. Mon. C-33 Ref. Mon. C-32 S-34	525.3 683.8 509.2	2.720394 2.834931 2.706920
Ref. Mon. S-36	47 12 52.74 68 00 07.19	282 24 40 315 29 09	102 25 06 135 29 32	Ref. Mon. C-33 Ref. Mon. S-35	778.1 961.2	2.891057 2.982825
C-34	47 13 04.16 67 59 50.29	45 14 39 322 07 55 342 57 30	225 14 27 142 08 09 162 57 41	Ref. Mon. S-36 Ref. Mon. C-33 Ref. Mon. S-35	500.8 658.6 1,085.8	2.699706 2.818630 3.035743
Ref. Mon. S-37	47 13 15.28 68 00 27.42	293 43 41 328 33 30	113 44 08 148 33 45	C-34 Ref. Mon. S-36	853.3 815.8	2.931112 2.911610
C-35 (Ste. Anne east base).	47 13 33.62 68 00 14.34	25 54 00 330 55 23 353 12 26	205 53 51 150 55 41 173 12 32	Ref. Mon. S-37 C-34 Ref. Mon. S-36	629.9 1,041.3 1,271.6	2.799263 3.017559 3.104359
Ref. Mon. S-38	47 14 02.91 68 01 22.63	302 10 59 321 41 52	122 11 49 141 42 33	C-35 Ref. Mon. S-37	1,697.5 1,874.2	3.229807 3.272825
C-36 (Ste. Anne west base).	47 14 08.56 68 00 52.98	74 22 24 323 00 04 341 54 00	254 22 02 143 00 32 161 54 19	Ref. Mon. S-38 C-35 Ref. Mon. S-37	647.7 1,350.71 1,731.1	2.811347 3.130562 3.238311
Ref. Mon. C-37	47 14 43.21 68 01 42.97	315 29 31 341 01 17	135 30 08 161 01 32	C-36 Ref. Mon. S-38	1,500.2 1,316.0	3.176156 3.119254

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
Ref. Mon. S-39-----	47 14 32.75 68 02 13.10	242 59 02 293 53 52 310 57 15	62 59 24 113 54 51 130 57 52	Ref. Mon. C-37--- C-36----- Ref. Mon. S-38---	711.1 1,843.3 1,405.7	2.851950 3.265607 3.147898
C-38-----	47 15 05.66 68 02 35.98	301 52 49 334 39 54	121 53 28 154 40 11	Ref. Mon. C-37--- Ref. Mon. S-39---	1,312.7 1,124.5	3.118176 3.050978
Ref. Mon. S-40-----	47 14 55.46 68 03 03.18	241 09 16 282 38 10 303 39 22	61 09 36 102 39 09 123 39 59	C-38----- Ref. Mon. C-37--- Ref. Mon. S-39---	653.0 1,728.6 1,265.4	2.814923 3.237704 3.102229
Ref. Mon. S-41-----	47 15 14.41 68 03 39.91	281 21 12 307 08 28	101 21 59 127 08 55	C-38----- Ref. Mon. S-40---	1,371.2 969.0	3.137106 2.986320
Ref. Mon. C-39-----	47 15 27.52 68 03 27.48	32 50 00 301 56 08 332 42 02	212 49 51 121 56 46 152 42 20	Ref. Mon. S-41--- C-38----- Ref. Mon. S-40---	482.1 1,276.2 1,114.2	2.683098 3.105904 3.046980
C-40-----	47 15 46.26 68 04 25.27	295 27 16 315 52 37	115 27 58 135 53 10	Ref. Mon. C-39--- Ref. Mon. S-41---	1,345.8 1,370.1	3.128974 3.136748
Ref. Mon. S-42-----	47 15 26.60 68 05 12.53	238 33 59 269 14 55 280 55 59	58 34 34 89 16 12 100 57 07	C-40----- Ref. Mon. C-39--- Ref. Mon. S-41---	1,164.3 2,208.8 1,983.4	3.066048 3.344161 3.297414
Ref. Mon. S-43-----	47 16 41.26 68 06 46.03	299 50 40 319 32 29	119 52 24 139 33 38	C-40----- Ref. Mon. S-42---	3,411.7 3,029.8	3.532973 3.481420
Ref. Mon. C-41-----	47 16 51.12 68 05 57.52	73 22 39 315 55 18 340 04 37	253 22 03 135 56 26 160 05 10	Ref. Mon. S-43--- C-40----- Ref. Mon. S-42---	1,064.1 2,787.8 2,776.2	3.026981 3.445266 3.443455
C-42-----	47 17 22.71 68 07 11.41	302 08 10 337 23 02	122 09 04 157 23 20	Ref. Mon. C-41--- Ref. Mon. S-43---	1,833.8 1,386.8	3.263351 3.142002
Ref. Mon. S-44-----	47 17 01.85 68 07 36.76	219 34 36 279 00 57 300 48 26	39 34 55 99 02 10 120 49 03	C-42----- Ref. Mon. C-41--- Ref. Mon. S-43---	836.0 2,111.7 1,241.2	2.922227 3.324625 3.093839
Ref. Mon. S-45-----	47 17 41.49 68 08 45.73	286 17 50 310 10 45	106 18 59 130 11 35	C-42----- Ref. Mon. S-44---	2,064.9 1,897.1	3.314904 3.278095
Ref. Mon. C-43-----	47 18 03.56 68 08 26.91	30 06 52 308 28 57 331 03 13	210 06 38 128 29 52 151 03 49	Ref. Mon. S-45--- C-42----- Ref. Mon. S-44---	788.0 2,026.8 2,177.8	2.896518 3.306807 3.338013
Ref. Mon. S-46-----	47 18 12.60 68 09 30.00	281 53 43 315 55 55	101 54 30 135 56 28	Ref. Mon. C-43--- Ref. Mon. S-45---	1,354.4 1,337.3	3.131753 3.126241
Ref. Mon. C-44-----	47 18 52.22 68 08 55.69	30 30 08 338 05 03 354 31 37	210 29 43 158 05 25 174 31 44	Ref. Mon. S-46--- Ref. Mon. C-43--- Ref. Mon. S-45---	1,419.9 1,619.8 2,194.4	3.152265 3.209466 3.341322
Ref. Mon. S-47-----	47 19 01.10 68 09 59.98	281 28 19 337 11 34	101 29 06 157 11 56	Ref. Mon. C-44--- Ref. Mon. S-46---	1,377.7 1,624.6	3.139158 3.210751
Ref. Mon. C-45-----	47 19 22.97 68 09 02.57	14 51 00 60 44 54 351 20 39	194 50 40 240 44 12 171 20 44	Ref. Mon. S-46--- Ref. Mon. S-47--- Ref. Mon. C-44---	2,248.0 1,381.8 960.4	3.351799 3.140443 2.982467
C-46-----	47 19 51.67 68 10 27.90	296 18 40 339 24 50	116 19 43 159 25 11	Ref. Mon. C-45--- Ref. Mon. S-47---	1,999.0 1,668.2	3.300820 3.222237
Ref. Mon. S-48-----	47 19 27.99 68 10 38.29	196 36 17 274 24 19 315 54 17	16 36 24 94 25 29 135 54 45	C-46----- Ref. Mon. C-45--- Ref. Mon. S-47---	763.0 2,016.0 1,156.3	2.882509 3.304481 3.063081

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
Ref. Mon. C-47	47 19 53.12 68 10 47.30	276 18 00 346 18 14	96 18 14 166 18 21	C-46	409.6	2.612383
				Ref. Mon. S-48	798.8	2.902453
Ref. Mon. S-49	47 19 38.91 68 10 55.08	200 24 32 235 21 57 313 43 19	20 24 37 55 22 16 133 43 31	Ref. Mon. C-47	468.4	2.670615
				C-46	693.4	2.840954
				Ref. Mon. S-48	487.7	2.688197
Ref. Mon. S-50	47 20 05.96 68 12 03.94	283 50 16 300 01 03	103 51 12 120 01 54	Ref. Mon. C-47	1,657.3	3.219400
				Ref. Mon. S-49	1,670.0	3.222704
Ref. Mon. C-48	47 20 13.87 68 11 42.22	61 49 19 299 03 28 317 29 07	241 49 03 119 04 08 137 29 42	Ref. Mon. S-50	517.3	2.713701
				Ref. Mon. C-47	1,319.3	3.120335
				Ref. Mon. S-49	1,464.9	3.165807
Ref. Mon. C-49	47 20 35.38 68 12 16.44	312 45 12 343 52 50	132 45 37 163 52 59	Ref. Mon. C-48	978.5	2.990559
				Ref. Mon. S-50	945.7	2.975770
Ref. Mon. S-51	47 20 18.18 68 12 33.58	214 05 25 277 01 12 301 12 54	34 05 38 97 01 50 121 13 16	Ref. Mon. C-49	641.7	2.807336
				Ref. Mon. C-48	1,086.4	3.035971
				Ref. Mon. S-50	727.7	2.861923
Ref. Mon. S-52	47 20 43.61 68 13 54.82	277 00 20 294 43 22	97 01 33 114 44 22	Ref. Mon. C-49	2,080.6	3.318196
				Ref. Mon. S-51	1,877.7	3.273624
Ref. Mon. C-50	47 21 04.36 68 13 27.36	41 58 29 301 00 18 321 37 51	221 58 09 121 01 11 141 38 31	Ref. Mon. S-52	861.8	2.935413
				Ref. Mon. C-49	1,736.9	3.239763
				Ref. Mon. S-51	1,819.0	3.259842
C-51	47 21 37.64 68 14 34.21	306 13 15 333 38 22	126 14 04 153 38 51	Ref. Mon. C-50	1,739.1	3.240337
				Ref. Mon. S-52	1,862.1	3.270011
Ref. Mon. S-53	47 21 02.35 68 14 59.29	205 46 07 268 08 45 293 08 43	25 46 25 88 09 52 113 09 30	C-51	1,210.4	3.082914
				Ref. Mon. C-50	1,930.3	3.285634
				Ref. Mon. S-52	1,471.6	3.167791
Ref. Mon. C-52	47 21 32.17 68 15 26.85	261 17 24 327 51 39	81 18 02 147 51 59	C-51	1,117.5	3.048239
				Ref. Mon. S-53	1,087.5	3.036417
Ref. Mon. S-54	47 20 52.09 68 16 16.12	219 52 37 236 39 23 258 52 46	39 53 13 56 40 37 78 53 42	Ref. Mon. C-52	1,612.8	3.207590
				C-51	2,560.0	3.408244
				Ref. Mon. S-53	1,643.6	3.215793
Ref. Mon. C-53	47 21 38.68 68 16 49.59	276 36 01 333 58 29	96 37 02 153 58 54	Ref. Mon. C-52	1,748.0	3.242545
				Ref. Mon. S-54	1,601.1	3.204426
Ref. Mon. S-55	47 20 57.38 68 17 22.40	208 21 25 246 05 43 276 41 24	28 21 49 66 07 08 96 42 13	Ref. Mon. C-53	1,449.4	3.161202
				Ref. Mon. C-52	2,652.4	3.423640
				Ref. Mon. S-54	1,400.7	3.146333
Ref. Mon. C-54	47 21 33.49 68 18 05.78	264 16 10 320 46 16	84 17 06 140 46 48	Ref. Mon. C-53	1,606.7	3.205943
				Ref. Mon. S-55	1,439.7	3.158259
Ref. Mon. S-56	47 21 05.35 68 18 22.34	201 48 02 242 07 23 281 04 16	21 48 14 62 08 31 101 05 00	Ref. Mon. C-54	935.9	2.971232
				Ref. Mon. C-53	2,201.8	3.342773
				Ref. Mon. S-55	1,282.0	3.107876
Ref. Mon. S-57	47 21 11.52 68 19 31.83	249 23 41 277 25 40	69 24 44 97 26 31	Ref. Mon. C-54	1,929.2	3.285369
				Ref. Mon. S-56	1,470.7	3.167534
Ref. Mon. C-55	47 21 43.91 68 19 06.33	28 08 47 284 11 55 322 12 24	208 08 28 104 12 39 142 12 56	Ref. Mon. S-57	1,134.4	3.054769
				Ref. Mon. C-54	1,310.7	3.117510
				Ref. Mon. S-56	1,506.6	3.177986
C-56	47 21 42.19 68 19 44.35	266 12 19 344 29 54	86 12 47 164 30 03	Ref. Mon. C-55	799.5	2.902828
				Ref. Mon. S-57	983.2	2.992634



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS— continued						
	° ' "	° ' "	° ' "			
Ref. Mon. S-58-----	47 21 13.06 68 19 59.85	199 52 51 229 41 38 274 38 05	19 53 03 49 42 18 94 38 26	C-56----- Ref. Mon. C-55--- Ref. Mon. S-57---	956.7 1,472.7 590.1	2.980793 3.168128 2.770932
Ref. Mon. S-59-----	47 21 14.82 68 20 45.19	236 28 56 273 15 34	56 29 41 93 16 07	C-56----- Ref. Mon. S-58---	1,531.3 953.0	3.185064 2.979098
C-57-----	47 21 39.76 68 20 56.32	267 08 20 304 49 19 343 07 43	87 09 13 124 50 00 163 07 51	C-56----- Ref. Mon. S-58--- Ref. Mon. S-59---	1,512.1 1,443.5 804.8	3.179581 3.159428 2.905686
C-58-----	47 21 35.16 68 21 13.13	248 04 01 316 57 19	68 04 13 136 57 39	C-57----- Ref. Mon. S-59---	380.5 859.3	2.580334 2.934165
Ref. Mon. S-60-----	47 21 12.21 68 21 10.47	175 29 05 199 14 52 261 22 50	355 29 03 19 15 02 81 23 08	C-58----- C-57----- Ref. Mon. S-59---	710.7 900.9 536.7	2.851665 2.954694 2.729705
Ref. Mon. S-61-----	47 20 57.21 68 22 05.42	223 06 58 248 06 27	43 07 36 68 07 07	C-58----- Ref. Mon. S-60---	1,605.4 1,243.0	3.205595 3.094473
Ref. Mon. C-59-----	47 21 21.02 68 22 19.96	252 42 11 280 33 11 337 27 26	72 43 00 100 34 02 157 27 37	C-58----- Ref. Mon. S-60--- Ref. Mon. S-61---	1,468.8 1,483.6 796.1	3.166977 3.171327 2.900960
Ref. Mon. C-60-----	47 20 40.49 68 23 03.75	216 17 15 247 07 49	36 17 47 67 08 32	Ref. Mon. C-59--- Ref. Mon. S-61---	1,552.8 1,328.7	3.191103 3.123441
Ref. Mon. S-62-----	47 20 34.19 68 22 22.46	102 39 13 182 04 40 206 42 41	282 38 43 2 04 42 26 42 54	Ref. Mon. C-60--- Ref. Mon. C-59--- Ref. Mon. S-61---	888.3 1,447.0 795.7	2.948544 3.160471 2.900759
Ref. Mon. S-63-----	47 20 05.52 68 22 37.97	153 23 01 200 10 26	333 22 42 20 10 37	Ref. Mon. C-60--- Ref. Mon. S-62---	1,208.2 943.5	3.082149 2.974760
Ref. Mon. C-61 (Ed- mundston north base).	47 20 03.56 68 23 05.01	181 19 26 223 21 01 263 55 53	1 19 27 43 21 32 83 56 13	Ref. Mon. C-60--- Ref. Mon. S-62--- Ref. Mon. S-63---	1,140.8 1,301.0 571.0	3.057210 3.114277 2.756610
Ref. Mon. C-62 (Edmundston south base).	47 19 46.79 68 23 09.06	189 19 37 228 27 34	9 19 40 48 27 57	Ref. Mon. C-61--- Ref. Mon. S-63---	524.99 872.2	2.720147 2.940629
Ref. Mon. S-64-----	47 19 38.53 68 22 49.15	121 22 24 156 41 51 195 44 23	301 22 09 336 41 39 15 44 31	Ref. Mon. C-62--- Ref. Mon. C-61--- Ref. Mon. S-63---	489.6 841.6 865.7	2.689870 2.925104 2.937387
Ref. Mon. C-63-----	47 19 28.93 68 23 17.97	198 44 06 243 53 05	18 44 12 63 53 26	Ref. Mon. C-62--- Ref. Mon. S-64---	582.4 673.9	2.765199 2.828610
Ref. Mon. S-65-----	47 19 23.42 68 22 45.86	104 09 49 145 58 31 171 34 07	284 09 25 325 58 13 351 34 04	Ref. Mon. C-63--- Ref. Mon. C-62--- Ref. Mon. S-64---	695.5 870.7 471.9	2.842288 2.939891 2.673809
Ref. Mon. S-66-----	47 18 35.10 68 22 39.47	154 03 57 174 51 49	334 03 29 354 51 45	Ref. Mon. C-63--- Ref. Mon. S-65---	1,848.6 1,498.3	3.266850 3.175597
Ref. Mon. C-64-----	47 18 51.56 68 23 27.82	190 09 40 221 50 49 296 35 17	10 09 47 41 51 20 116 35 52	Ref. Mon. C-63--- Ref. Mon. S-65--- Ref. Mon. S-66---	1,172.4 1,320.9 1,135.7	3.069080 3.120856 3.055261
Ref. Mon. C-65-----	47 18 43.31 68 23 30.67	193 14 09 283 16 00	13 14 12 103 16 38	Ref. Mon. C-64--- Ref. Mon. S-66---	261.7 1,105.0	2.417741 3.043361
Ref. Mon. S-67-----	47 18 26.72 68 22 44.17	117 41 21 129 55 37 200 53 36	297 40 47 309 55 06 20 53 40	Ref. Mon. C-65--- Ref. Mon. C-64--- Ref. Mon. S-66---	1,103.0 1,195.4 277.0	3.042574 3.077523 2.442466

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS — continued	° ' "	° ' "	° ' "			
Ref. Mon. S-68-----	47 17 59.95 68 22 30.03	136 26 18 160 14 06	316 25 34 340 13 56	Ref. Mon. C-65--- Ref. Mon. S-67---	1,848.3 878.5	3.266778 2.943758
Ref. Mon. C-66-----	47 17 46.28 68 23 56.55	197 08 46 230 35 28 256 54 55	17 09 05 50 36 21 76 55 58	Ref. Mon. C-65--- Ref. Mon. S-67--- Ref. Mon. S-68---	1,843.3 1,967.6 1,866.0	3.265607 3.293939 3.270920
Ref. Mon. S-69-----	47 16 57.19 68 22 29.62	129 41 55 179 44 36	309 40 51 359 44 35	Ref. Mon. C-66--- Ref. Mon. S-68---	2,373.8 1,938.1	3.375435 3.287386
Ref. Mon. S-70-----	47 16 35.69 68 23 37.81	169 45 44 208 41 12 245 08 07	349 45 30 28 42 01 65 08 57	Ref. Mon. C-66--- Ref. Mon. S-68--- Ref. Mon. S-69---	2,215.2 2,966.3 1,579.5	3.345410 3.472221 3.198510
Ref. Mon. S-71-----	47 16 54.51 68 24 35.49	207 06 11 295 36 25	27 06 39 115 37 07	Ref. Mon. C-66--- Ref. Mon. S-70---	1,796.0 1,344.4	3.254304 3.128544
Ref. Mon. C-67-----	47 17 27.52 68 24 38.94	236 57 29 321 14 23 355 55 44	56 58 00 141 15 08 175 55 47	Ref. Mon. C-66--- Ref. Mon. S-70--- Ref. Mon. S-71---	1,062.6 2,052.4 1,022.0	3.026381 3.312270 3.009434
Ref. Mon. C-68-----	47 17 26.54 68 26 13.94	269 07 35 295 32 45	89 08 44 115 33 57	Ref. Mon. C-67--- Ref. Mon. S-71---	1,996.4 2,293.2	3.300245 3.360449
Ref. Mon. S-72-----	47 16 40.52 68 26 02.29	170 13 36 230 20 35 256 39 54	350 13 28 50 21 36 76 40 58	Ref. Mon. C-68--- Ref. Mon. C-67--- Ref. Mon. S-71---	1,442.3 2,274.8 1,874.7	3.159063 3.356943 3.272937
Ref. Mon. S-73-----	47 17 00.08 68 27 33.30	243 53 06 287 31 13	63 54 04 107 32 19	Ref. Mon. C-68--- Ref. Mon. S-72---	1,857.1 2,005.9	3.268841 3.302304
Ref. Mon. C-69-----	47 17 45.82 68 27 31.44	1 35 05 290 04 12 317 05 54	181 35 04 110 05 09 137 06 59	Ref. Mon. S-73--- Ref. Mon. C-68--- Ref. Mon. S-72---	1,413.0 1,733.7 2,752.5	3.150129 3.238986 3.439730
Ref. Mon. S-74-----	47 17 27.82 68 28 22.08	242 24 50 309 53 07	62 25 27 129 53 43	Ref. Mon. C-69--- Ref. Mon. S-73---	1,200.3 1,335.8	3.079285 3.125746
Ref. Mon. C-70-----	47 18 01.17 68 28 12.26	11 19 19 298 55 41 336 32 13	191 19 12 118 56 11 156 32 42	Ref. Mon. S-74--- Ref. Mon. C-69--- Ref. Mon. S-73---	1,050.2 979.9 2,056.5	3.021288 2.991198 3.313120
Ref. Mon. C-71-----	47 18 19.49 68 29 10.45	294 50 02 327 30 01	114 50 45 147 30 37	Ref. Mon. C-70--- Ref. Mon. S-74---	1,347.0 1,891.8	3.129371 3.276886
Ref. Mon. S-75-----	47 17 27.82 68 29 13.41	182 13 43 231 16 25 269 59 12	2 13 45 51 17 10 89 59 50	Ref. Mon. C-71--- Ref. Mon. C-70--- Ref. Mon. S-74---	1,597.0 1,646.6 1,078.6	3.203311 3.216580 3.032860
Ref. Mon. S-76-----	47 17 36.70 68 30 04.47	220 38 52 284 19 51	40 39 32 104 20 29	Ref. Mon. C-71--- Ref. Mon. S-75---	1,742.0 1,107.4	3.241053 3.044310
Ref. Mon. C-72-----	47 18 14.14 68 30 13.34	262 51 57 318 38 20 350 50 29	82 52 43 138 39 04 170 50 35	Ref. Mon. C-71--- Ref. Mon. S-75--- Ref. Mon. S-76---	1,331.5 1,905.9 1,171.3	3.124332 3.280093 3.068677
Ref. Mon. S-77-----	47 17 39.78 68 30 32.07	200 20 26 234 25 12 279 19 44	20 20 40 54 26 12 99 20 04	Ref. Mon. C-72--- Ref. Mon. C-71--- Ref. Mon. S-76---	1,131.7 2,108.1 587.7	3.053726 3.323890 2.769127
Ref. Mon. S-78-----	47 17 39.48 68 30 57.62	220 59 26 269 01 14	40 59 59 89 01 33	Ref. Mon. C-72--- Ref. Mon. S-77---	1,418.0 536.9	3.151676 2.729908
Ref. Mon. C-73-----	47 18 00.12 68 31 13.12	250 58 17 306 03 34 332 55 35	70 59 01 126 04 04 152 55 46	Ref. Mon. C-72--- Ref. Mon. S-77--- Ref. Mon. S-78---	1,328.4 1,067.0 715.7	3.123324 3.028168 2.854729

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
Ref. Mon. C-74-----	47 17 46.97 68 31 40.68	234 56 27 284 19 03	54 56 48 104 19 35	Ref. Mon. C-73--- Ref. Mon. S-78---	707.3 933.8	2.849627 2.970257
Ref. Mon. S-79-----	47 17 35.41 68 31 18.71	127 41 58 188 44 30 254 08 46	307 41 42 8 44 35 74 09 02	Ref. Mon. C-74--- Ref. Mon. C-73--- Ref. Mon. S-78---	583.5 772.1 460.6	2.766050 2.887653 2.663336
Ref. Mon. S-80-----	47 17 22.29 68 31 39.05	177 25 18 204 59 34 226 31 00	357 25 17 24 59 54 46 31 15	Ref. Mon. C-74--- Ref. Mon. C-73--- Ref. Mon. S-79---	762.9 1,289.2 589.0	2.882478 3.110310 2.770151
Ref. Mon. C-75-----	47 17 27.77 68 32 26.25	238 13 54 279 41 14	58 14 28 99 41 49	Ref. Mon. C-74--- Ref. Mon. S-80---	1,126.0 1,006.1	3.051549 3.002651
Ref. Mon. S-81-----	47 16 56.89 68 32 19.88	172 00 34 208 02 07 227 33 59	352 00 29 28 02 36 47 34 29	Ref. Mon. C-75--- Ref. Mon. C-74--- Ref. Mon. S-80---	963.0 1,752.0 1,162.4	2.983615 3.243541 3.065350
Ref. Mon. C-76-----	47 17 18.56 68 32 48.97	239 11 51 317 34 29	59 12 07 137 34 50	Ref. Mon. C-75--- Ref. Mon. S-81---	555.8 906.3	2.744957 2.957260
Ref. Mon. S-82-----	47 16 46.35 68 33 07.22	201 05 29 213 56 37 251 52 48	21 05 42 33 57 06 71 53 22	Ref. Mon. C-76--- Ref. Mon. C-75--- Ref. Mon. S-81---	1,066.0 1,542.0 1,047.0	3.027740 3.188082 3.019928
Ref. Mon. S-83-----	47 16 51.08 68 33 50.56	236 44 23 279 05 51	56 45 09 99 06 24	Ref. Mon. C-76--- Ref. Mon. S-82---	1,547.6 922.3	3.189665 2.964859
Ref. Mon. C-77-----	47 17 18.23 68 33 33.43	23 13 42 269 22 42 330 46 29	203 13 29 89 23 15 150 46 49	Ref. Mon. S-83--- Ref. Mon. C-76--- Ref. Mon. S-82---	912.5 934.3 1,128.0	2.960256 2.970491 3.052324
Ref. Mon. C-78-----	47 17 24.41 68 34 24.04	280 10 35 325 38 54	100 11 12 145 39 18	Ref. Mon. C-77--- Ref. Mon. S-83---	1,080.4 1,247.0	3.033582 3.095868
Ref. Mon. S-84-----	47 16 51.32 68 34 15.26	169 46 12 226 36 01 270 49 22	349 46 06 46 36 32 90 49 40	Ref. Mon. C-78--- Ref. Mon. C-77--- Ref. Mon. S-83---	1,038.6 1,209.7 519.2	3.016444 3.082676 2.715349
Ref. Mon. S-85-----	47 16 47.72 68 34 46.53	202 38 18 260 23 49	22 38 35 80 24 12	Ref. Mon. C-78--- Ref. Mon. S-84---	1,227.9 666.5	3.089147 2.823817
Ref. Mon. C-79-----	47 17 08.61 68 35 26.15	249 29 15 289 42 38 307 45 49	69 30 01 109 43 30 127 46 18	Ref. Mon. C-78--- Ref. Mon. S-84--- Ref. Mon. S-85---	1,393.5 1,582.6 1,053.3	3.144098 3.199358 3.022541
Ref. Mon. C-80-----	47 16 41.30 68 36 01.45	221 20 10 262 49 07	41 20 36 82 50 02	Ref. Mon. C-79--- Ref. Mon. S-85---	1,123.2 1,587.0	3.050439 3.200578
Ref. Mon. S-86-----	47 16 26.19 68 35 08.44	112 43 47 164 08 17 214 42 13	292 43 08 344 08 04 34 42 29	Ref. Mon. C-80--- Ref. Mon. C-79--- Ref. Mon. S-85---	1,208.0 1,361.8 808.7	3.082062 3.134105 2.907789
Ref. Mon. S-87-----	47 16 03.16 68 35 36.12	155 41 03 219 17 44	335 40 44 39 18 04	Ref. Mon. C-80--- Ref. Mon. S-86---	1,292.5 919.0	3.111427 2.963310
Ref. Mon. C-81-----	47 16 29.38 68 36 23.92	232 02 50 273 32 18 308 51 23	52 03 06 93 33 13 128 51 58	Ref. Mon. C-80--- Ref. Mon. S-86--- Ref. Mon. S-87---	598.9 1,589.6 1,290.1	2.777370 3.201284 3.110639
Ref. Mon. C-82-----	47 15 15.49 68 36 19.79	177 49 27 211 56 38	357 49 24 31 57 10	Ref. Mon. C-81--- Ref. Mon. S-87---	2,283.3 1,735.0	3.358567 3.239298
Ref. Mon. S-89-----	47 14 48.33 68 35 15.13	121 40 37 155 08 26 169 11 10	301 39 50 335 07 36 349 10 55	Ref. Mon. C-82--- Ref. Mon. C-81--- Ref. Mon. S-87---	1,597.8 3,439.4 2,352.9	3.203517 3.536485 3.371598



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° / "	° / "	° / "			
Ref. Mon. S-88-----	47 15 36.63 68 35 17.70	63 26 17 139 29 20 357 55 18	243 25 32 319 28 32 177 55 20	Ref. Mon. C-82--- Ref. Mon. C-81--- Ref. Mon. S-89---	1,459.7 2,142.6 1,492.7	3.164260 3.330937 3.173983
S-90-----	47 14 40.76 68 36 20.29	180 33 37 217 19 42 260 18 46	0 33 37 37 20 27 80 19 33	Ref. Mon. C-82--- Ref. Mon. S-88--- Ref. Mon. S-89---	1,072.7 2,170.2 1,390.3	3.030486 3.336498 3.143093
Ref. Mon. C-83-----	47 14 58.33 68 36 41.04	220 06 57 279 41 14 321 11 20	40 07 13 99 42 17 141 11 36	Ref. Mon. C-82--- Ref. Mon. S-89--- S-90-----	693.3 1,832.9 696.2	2.840931 3.263130 2.842709
Ref. Mon. C-84-----	47 14 55.44 68 37 16.21	263 07 33 291 04 38	83 07 58 111 05 19	Ref. Mon. C-83--- S-90-----	745.0 1,260.3	2.872133 3.100477
Clair east base-----	47 14 55.20 68 36 39.12	90 33 20 157 19 44	270 32 53 337 19 42	Ref. Mon. C-84--- Ref. Mon. C-83---	780.0 104.7	2.892104 2.020035
Clair west base-----	47 14 48.81 68 37 11.07	152 09 17 245 01 59 253 37 40	332 09 13 65 02 20 73 38 03	Ref. Mon. C-84--- Ref. Mon. C-83--- Clair east base---	231.7 696.5 700.17	2.364848 2.842914 2.845202
Ref. Mon. S-91-----	47 14 20.68 68 36 56.36	158 45 16 195 29 42 230 44 19	338 45 02 15 29 53 50 44 46	Ref. Mon. C-84--- Ref. Mon. C-83--- S-90-----	1,151.7 1,206.4 979.8	3.061329 3.081477 2.991142
Ref. Mon. S-92-----	47 14 17.49 68 37 45.41	207 39 12 264 31 54	27 39 34 84 32 30	Ref. Mon. C-84--- Ref. Mon. S-91---	1,323.2 1,036.4	3.121639 3.015516
Ref. Mon. C-85-----	47 14 41.63 68 37 45.97	235 43 54 301 47 54 359 05 54	55 44 16 121 48 30 179 05 54	Ref. Mon. C-84--- Ref. Mon. S-91--- Ref. Mon. S-92---	757.4 1,227.7 745.7	2.879295 3.089076 2.872587
Ref. Mon. C-86-----	47 14 39.34 68 38 18.69	264 07 04 313 57 02	84 07 28 133 57 26	Ref. Mon. C-85--- Ref. Mon. S-92---	691.8 972.2	2.839952 2.987761
Ref. Mon. S-93-----	47 14 16.52 68 38 09.03	163 54 32 212 00 41 266 33 13	343 54 25 32 00 58 86 33 30	Ref. Mon. C-86--- Ref. Mon. C-85--- Ref. Mon. S-92---	733.4 914.6 497.5	2.865351 2.961246 2.696821
Ref. Mon. S-94-----	47 14 17.56 68 38 47.53	222 02 30 272 16 06	42 02 51 92 16 34	Ref. Mon. C-86--- Ref. Mon. S-93---	905.6 810.5	2.956953 2.908746
Ref. Mon. C-87-----	47 14 42.79 68 38 54.84	277 58 35 310 05 25 348 50 03	97 59 01 130 05 58 168 50 08	Ref. Mon. C-86--- Ref. Mon. S-93--- Ref. Mon. S-94---	767.7 1,259.6 794.2	2.885178 3.100235 2.899903
Ref. Mon. C-88-----	47 14 43.60 68 39 39.89	271 30 15 306 07 52	91 30 48 126 08 30	Ref. Mon. C-87--- Ref. Mon. S-94---	947.7 1,363.5	2.976660 3.134656
Ref. Mon. S-95-----	47 14 10.86 68 39 23.26	160 55 33 211 13 20 254 36 00	340 55 21 31 13 41 74 36 26	Ref. Mon. C-88--- Ref. Mon. C-87--- Ref. Mon. S-94---	1,069.8 1,153.1 779.6	3.029302 3.061886 2.891875
Ref. Mon. S-96-----	47 13 52.42 68 40 30.22	213 48 28 247 58 31	33 49 05 67 59 20	Ref. Mon. C-88--- Ref. Mon. S-95---	1,902.4 1,519.2	3.279294 3.181616
Ref. Mon. C-89-----	47 14 36.80 68 40 10.29	17 00 12 251 49 37 309 00 05	196 59 57 71 49 59 129 00 39	Ref. Mon. S-96--- Ref. Mon. C-88--- Ref. Mon. S-95---	1,433.4 673.0 1,272.9	3.156356 2.828031 3.104800
Ref. Mon. C-90-----	47 14 56.18 68 41 31.35	289 20 18 326 51 05	109 21 18 146 51 50	Ref. Mon. C-89--- Ref. Mon. S-96---	1,806.7 2,351.9	3.256893 3.371414
Ref. Mon. S-97-----	47 14 17.69 68 41 54.98	202 40 55 254 58 46 293 37 40	22 41 13 75 00 04 113 38 43	Ref. Mon. C-90--- Ref. Mon. C-89--- Ref. Mon. S-96---	1,288.6 2,279.6 1,946.3	3.110123 3.357867 3.289205

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
Ref. Mon. C-91-----	47 14 53.41 68 42 11.51	264 11 48 342 30 31	84 12 18 162 30 43	Ref. Mon. C-90---- Ref. Mon. S-97----	848.8 1,156.6	2.928822 3.063196
Ref. Mon. S-98-----	47 14 20.04 68 42 53.51	220 36 02 237 07 44 273 22 20	40 36 33 57 08 45 93 23 03	Ref. Mon. C-91---- Ref. Mon. C-90---- Ref. Mon. S-97----	1,357.3 2,057.1 1,233.3	3.132679 3.313264 3.091053
Ref. Mon. C-92-----	47 14 57.12 68 43 24.40	274 16 27 302 55 09 330 26 06	94 17 21 122 56 15 150 26 29	Ref. Mon. C-91---- Ref. Mon. S-97---- Ref. Mon. S-98----	1,537.1 2,240.5 1,316.6	3.186709 3.350349 3.119469
Ref. Mon. C-93-----	47 14 51.68 68 43 44.23	248 01 54 312 29 07	68 02 08 132 29 44	Ref. Mon. C-92---- Ref. Mon. S-98----	449.6 1,446.5	2.652866 3.160317
Ref. Mon. S-99-----	47 14 08.73 68 43 23.17	161 32 00 179 00 21 240 44 50	341 31 45 359 00 20 60 45 12	Ref. Mon. C-93---- Ref. Mon. C-92---- Ref. Mon. S-98----	1,398.4 1,494.8 714.9	3.145625 3.174576 2.854229
Ref. Mon. S-100-----	47 13 27.16 68 44 48.53	207 23 04 234 25 47	27 23 51 54 26 49	Ref. Mon. C-93---- Ref. Mon. S-99----	2,939.7 2,207.4	3.468301 3.343873
Ref. Mon. C-94-----	47 14 31.74 68 44 55.54	247 39 59 290 04 42 355 46 12	67 40 51 110 05 49 175 46 17	Ref. Mon. C-93---- Ref. Mon. S-99---- Ref. Mon. S-100---	1,621.2 2,068.7 1,999.7	3.209831 3.315691 3.300965
Ref. Mon. C-95-----	47 13 50.34 68 45 50.02	221 52 01 298 56 55	41 52 41 118 57 40	Ref. Mon. C-94---- Ref. Mon. S-100---	1,716.9 1,478.5	3.234753 3.169823
Ref. Mon. S-101-----	47 13 20.01 68 45 20.42	146 22 53 193 17 27 251 46 37	326 22 31 13 17 45 71 47 00	Ref. Mon. C-95---- Ref. Mon. C-94---- Ref. Mon. S-100---	1,124.8 2,276.1 706.4	3.051074 3.357191 2.849030
Ref. Mon. S-102-----	47 13 13.76 68 45 55.21	185 31 10 255 13 44	5 31 14 75 14 10	Ref. Mon. C-95---- Ref. Mon. S-101---	1,134.9 757.0	3.054944 2.879124
Ref. Mon. C-96-----	47 13 46.61 68 46 45.25	264 20 15 294 42 34 313 56 10	84 20 56 114 43 37 133 56 47	Ref. Mon. C-95---- Ref. Mon. S-101--- Ref. Mon. S-102---	1,167.5 1,964.7 1,462.0	3.067245 3.293296 3.164953
Ref. Mon. C-97-----	47 13 22.36 68 47 16.11	220 55 02 278 51 48	40 55 25 98 52 48	Ref. Mon. C-96---- Ref. Mon. S-102---	991.0 1,722.6	2.996097 3.236187
Ref. Mon. S-103-----	47 13 02.54 68 47 12.35	172 38 59 202 43 30 257 56 04	352 38 56 22 43 50 77 57 01	Ref. Mon. C-97---- Ref. Mon. C-96---- Ref. Mon. S-102---	617.4 1,475.8 1,659.7	2.790598 3.169035 3.220031
Ref. Mon. S-104-----	47 12 44.04 68 47 59.88	217 53 03 240 15 41	37 53 35 60 16 16	Ref. Mon. C-97---- Ref. Mon. S-103---	1,499.7 1,151.7	3.176007 3.061340
Ref. Mon. C-98-----	47 13 06.48 68 48 17.43	249 10 12 275 04 15 331 56 35	69 10 57 95 05 03 151 56 48	Ref. Mon. C-97---- Ref. Mon. S-103--- Ref. Mon. S-104---	1,380.4 1,374.7 785.1	3.139990 3.138192 2.894941
Ref. Mon. C-99-----	47 12 46.84 68 49 32.87	249 05 19 272 31 19	69 06 14 92 32 27	Ref. Mon. C-98---- Ref. Mon. S-104---	1,699.4 1,958.9	3.230304 3.292004
Ref. Mon. S-105-----	47 12 20.60 68 48 58.01	137 50 33 211 04 55 239 23 17	317 50 07 31 05 24 59 23 59	Ref. Mon. C-99---- Ref. Mon. C-98---- Ref. Mon. S-104---	1,093.0 1,654.1 1,421.4	3.038633 3.218567 3.152729
Ref. Mon. S-106-----	47 12 00.97 68 49 48.60	193 09 03 240 20 17	13 09 14 60 20 54	Ref. Mon. C-99---- Ref. Mon. S-105---	1,454.6 1,225.3	3.162758 3.088232
Ref. Mon. C-100-----	47 12 25.76 68 50 01.34	222 36 40 276 48 05 340 41 42	42 37 01 96 48 52 160 41 52	Ref. Mon. C-99---- Ref. Mon. S-105--- Ref. Mon. S-106---	884.8 1,342.2 811.0	2.946820 3.127828 2.909006

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° ' "	° ' "	° ' "			
Ref. Mon. C-101----	47 12 10.38 68 50 45.84	243 07 07 283 33 24	63 07 39 103 34 06	Ref. Mon. C-100-- Ref. Mon. S-106--	1,050.1 1,239.4	3.021238 3.093212
Ref. Mon. S-107----	47 11 51.29 68 50 30.01	150 31 23 209 32 43 251 03 28	330 31 11 29 33 03 71 03 58	Ref. Mon. C-101-- Ref. Mon. C-100-- Ref. Mon. S-106--	677.4 1,223.6 921.4	2.830838 3.087624 2.964460
Ref. Mon. S-108----	47 11 36.56 68 50 59.56	195 27 11 233 49 47	15 27 21 53 50 09	Ref. Mon. C-101-- Ref. Mon. S-107--	1,083.7 770.7	3.034902 2.886867
Ref. Mon. C-102----	47 11 51.91 68 51 20.18	231 42 13 271 02 02 317 31 29	51 42 38 91 02 39 137 31 44	Ref. Mon. C-101-- Ref. Mon. S-107-- Ref. Mon. S-108--	920.7 1,056.2 642.6	2.964118 3.023739 2.807922
Ref. Mon. C-103----	47 11 41.10 68 51 45.10	237 32 18 278 18 52	57 32 37 98 19 26	Ref. Mon. C-102-- Ref. Mon. S-108--	621.9 968.9	2.793723 2.986265
Ref. Mon. S-109----	47 11 21.94 68 51 25.28	144 49 06 186 37 32 230 09 46	324 48 51 6 37 36 50 10 05	Ref. Mon. C-103-- Ref. Mon. C-102-- Ref. Mon. S-108--	724.2 931.9 705.1	2.859834 2.969351 2.848260
Ref. Mon. C-104----	47 11 34.26 68 51 58.77	233 40 39 298 21 14	53 40 49 118 21 39	Ref. Mon. C-103-- Ref. Mon. S-109--	356.9 801.0	2.552593 2.903626
Ref. Mon. S-110----	47 11 05.60 68 52 02.20	184 39 38 198 09 48 236 59 52	4 39 41 18 10 01 57 00 20	Ref. Mon. C-104-- Ref. Mon. C-103-- Ref. Mon. S-109--	888.0 1,154.0 926.6	2.948410 3.062202 2.966869
Ref. Mon. C-105----	47 11 18.16 68 52 49.90	245 12 26 291 06 53	65 13 04 111 07 28	Ref. Mon. C-104-- Ref. Mon. S-110--	1,185.7 1,076.7	3.073972 3.032092
Ref. Mon. S-111----	47 10 52.92 68 52 16.98	138 21 33 196 43 05 218 29 31	318 21 09 16 43 19 38 29 42	Ref. Mon. C-105-- Ref. Mon. C-104-- Ref. Mon. S-110--	1,043.0 1,332.9 500.2	3.018292 3.124796 2.699130
Ref. Mon. S-112----	47 10 34.59 68 52 47.64	177 58 28 228 45 06	357 58 26 48 45 28	Ref. Mon. C-105-- Ref. Mon. S-111--	1,346.3 858.6	3.129152 2.933787
Ref. Mon. C-106----	47 10 59.66 68 53 21.39	229 14 37 278 42 55 317 26 29	49 15 00 98 43 42 137 26 54	Ref. Mon. C-105-- Ref. Mon. S-111-- Ref. Mon. S-112--	875.3 1,372.1 1,050.9	2.942143 3.137378 3.021556
Ref. Mon. S-113----	47 10 03.57 68 53 36.12	190 09 00 226 49 02	10 09 10 46 49 37	Ref. Mon. C-106-- Ref. Mon. S-112--	1,759.7 1,400.1	3.245435 3.146153
Ref. Mon. S-114----	47 10 33.86 68 54 14.23	234 23 37 269 17 11 319 22 24	54 24 15 89 18 14 139 22 52	Ref. Mon. C-106-- Ref. Mon. S-112-- Ref. Mon. S-113--	1,368.3 1,823.5 1,232.6	3.136182 3.260911 3.090839
St. Francis east base	47 10 35.44 68 53 20.80	87 31 13 179 02 15	267 30 34 359 02 14	Ref. Mon. S-114-- Ref. Mon. C-106--	1,126.2 747.8	3.051633 2.873793
St. Francis west base	47 10 19.71 68 54 05.00	156 01 11 216 39 37 242 26 12	336 01 04 36 40 08 62 26 44	Ref. Mon. S-114-- Ref. Mon. C-106-- St. Francis east base	478.2 1,537.7 1,049.99	2.679646 3.186885 3.021186
S-115-----	47 10 38.26 68 54 22.26	273 14 57 317 47 38	93 16 06 137 48 12	Ref. Mon. S-112-- Ref. Mon. S-113--	1,995.6 1,446.4	3.300083 3.160287
C-108-----	47 11 39.27 68 54 15.38	4 23 47 317 13 40 344 22 13	184 23 42 137 14 44 164 22 42	S-115----- Ref. Mon. S-112-- Ref. Mon. S-113--	1,889.6 2,720.7 3,068.9	3.276359 3.434680 3.486981
S-116-----	47 11 24.96 68 55 32.53	254 46 29 314 15 42	74 47 26 134 16 34	C-108----- S-115-----	1,683.1 2,066.1	3.226105 <sup>a</sup> 3.315159



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
C-109	47 11 48.39 68 54 40.82	56 23 39 297 44 55 349 46 15	236 23 01 117 45 14 169 46 29	S-116 C-108 S-115	1,307.1 605.1 2,200.7	3.116292 2.781809 3.342562
S-117	47 11 32.83 68 56 00.08	253 55 12 292 43 01	73 56 10 112 43 21	C-109 S-116	1,736.3 628.7	3.239624 2.798477
C-110	47 12 23.17 68 55 21.56	7 19 04 27 32 39 321 23 08	187 18 56 207 32 11 141 23 38	S-116 S-117 C-109	1,812.2 1,753.3 1,374.3	3.258199 3.243844 3.138082
C-111	47 12 51.06 68 57 11.03	290 29 16 328 16 09	110 30 36 148 17 01	C-110 S-117	2,459.5 2,840.2	3.390842 3.453350
S-118	47 12 23.11 68 58 37.14	244 31 20 269 57 19 295 08 37	64 32 23 89 59 42 115 10 32	C-111 C-110 S-117	2,007.0 4,116.0 3,652.4	3.302554 3.614478 3.562581
S-119	47 12 50.00 68 59 30.70	269 20 45 306 22 06	89 22 27 126 22 45	C-111 S-118	2,939.2 1,399.9	3.468222 3.146112
C-112	47 13 45.80 68 58 39.24	32 08 36 312 19 18 359 00 22	212 07 58 132 20 22 179 00 23	S-119 C-111 S-118	2,035.2 2,510.4 2,554.0	3.308612 3.399747 3.407218
C-113	47 14 20.71 69 00 13.60	298 29 46 342 08 09	118 30 55 162 08 40	C-112 S-119	2,258.7 2,943.2	3.353866 3.468815
S-120	47 13 28.45 69 00 48.49	204 26 53 258 50 11 305 57 03	24 27 19 78 51 46 125 58 00	C-113 C-112 S-119	1,772.9 2,771.4 2,022.1	3.248693 3.442704 3.305812
Ref. Mon. S-122	47 14 17.56 69 01 50.71	267 15 45 319 11 54	87 16 56 139 12 39	C-113 S-120	2,044.8 2,003.3	3.310651 3.301751
C-114	47 14 27.78 69 02 03.20	275 24 07 319 22 25 320 14 27	95 25 27 139 23 19 140 14 36	C-113 S-120 Ref. Mon. S-122	2,315.4 2,414.0 410.7	3.364630 3.382734 2.613534
Ref. Mon. S-123	47 14 29.31 69 02 09.44	276 12 36 289 46 37 312 39 21 317 49 00	96 14 01 109 46 42 132 39 35 137 49 59	C-113 C-114 Ref. Mon. S-122 S-120	2,450.7 139.4 535.6 2,536.1	3.38929 2.14430 2.72881 3.40417
Ref. Mon. C-114	47 14 37.68 69 02 13.38	325 00 51 342 14 45	145 00 59 162 14 48	C-114 Ref. Mon. S-123	373.2 271.5	2.57196 2.43382
S-123	47 14 44.88 69 02 46.37	287 45 12 301 45 17	107 45 36 121 45 44	Ref. Mon. C-114 Ref. Mon. S-123	728.6 913.5	2.86251 2.96071
C-116	47 14 47.64 69 02 24.60	79 26 03 322 29 21 330 36 28	259 25 47 142 29 29 150 36 39	S-123 Ref. Mon. C-114 Ref. Mon. S-123	465.7 387.8 649.9	2.66809 2.58861 2.81282
C-117	47 14 58.69 69 02 36.89	25 03 24 322 50 49	205 03 17 142 50 58	S-123 C-116	470.7 427.9	2.67278 2.63132
S-124	47 14 58.56 69 02 45.52	2 24 34 268 46 59 307 27 45	182 24 33 88 47 05 127 28 00	S-123 C-117 C-116	423.0 181.6 554.3	2.62630 2.25914 2.74376
C-118	47 15 05.48 69 02 47.46	313 20 04 349 12 07	133 20 12 169 12 09	C-117 S-124	305.6 217.5	2.48521 2.33737
S-125	47 15 05.05 69 02 49.13	249 17 52 307 21 30 339 16 20	69 17 53 127 21 39 159 16 23	C-118 C-117 S-124	37.5 323.8 214.2	1.57400 2.51030 2.33085

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
S-126-----	47 15 11.85 69 02 59.04	308 56 27 315 13 05	128 56 35 135 13 12	C-118----- S-125-----	313.1 295.9	2.49569 2.47119
Ref. Mon. C-115----	47 15 26.05 69 03 00.32	336 57 08 340 03 54 356 30 19	156 57 17 160 04 02 176 30 20	C-118----- S-125----- S-126-----	690.5 690.0 439.4	2.83914 2.83882 2.64284
S-127-----	47 15 20.45 69 03 14.47	239 49 13 309 18 12	59 49 23 129 18 23	Ref. Mon. C-115-- S-126-----	344.2 419.2	2.53683 2.62240
Ref. Mon. S-125----	47 15 36.68 69 03 05.48	20 39 59 341 42 59 349 59 49	200 39 53 161 43 03 169 59 55	S-127----- Ref. Mon. C-115-- S-126-----	535.8 345.7 778.7	2.72900 2.53875 2.89136
C-120-----	47 15 30.08 69 02 59.91	3 53 56 150 10 55	183 53 56 330 10 51	Ref. Mon. C-115-- Ref. Mon. S-125--	124.6 235.2	2.09536 2.37135
C-121-----	47 15 36.77 69 03 03.80	85 33 18 338 27 30 347 32 20	265 33 17 158 27 33 167 32 23	Ref. Mon. S-125-- C-120----- Ref. Mon. C-115--	35.4 222.3 339.0	1.54922 2.34692 2.53022
S-129-----	47 15 42.40 69 03 04.31	7 52 58 356 25 47	187 52 57 176 25 47	Ref. Mon. S-125-- C-121-----	178.3 174.3	2.25127 2.24119
C-122-----	47 15 43.26 69 03 00.13	21 02 21 28 57 30 73 17 33	201 02 18 208 57 26 253 17 30	C-121----- Ref. Mon. S-125-- S-129-----	214.6 232.1 91.8	2.33165 2.36560 1.96269
S-130-----	47 15 45.86 69 02 59.24	13 11 06 44 59 05	193 11 05 224 59 01	C-122----- S-129-----	82.6 151.0	1.91690 2.17892
C-123-----	47 15 45.14 69 02 57.95	38 18 38 57 43 41 129 27 11	218 18 36 237 43 36 309 27 10	C-122----- S-129----- S-130-----	74.1 158.3 35.1	1.86964 2.19937 1.54496
C-124-----	47 15 49.29 69 02 49.46	54 20 32 62 46 15	234 20 26 242 46 08	C-123----- S-130-----	219.7 231.2	2.34190 2.36407
C-125-----	47 15 52.65 69 02 55.37	13 08 14 21 10 20 309 52 42	193 08 12 201 10 17 129 52 46	C-123----- S-130----- C-124-----	238.2 224.9 162.1	2.37703 2.35201 2.20973
S-131-----	47 15 53.44 69 03 01.41	280 49 18 348 55 57	100 49 23 168 55 59	C-125----- S-130-----	129.3 238.4	2.11159 2.37738
S-132-----	47 15 59.52 69 02 56.66	7 19 14 28 01 58 352 43 37	187 19 12 208 01 54 172 43 38	S-130----- S-131----- C-125-----	425.2 212.7 213.7	2.62857 2.32768 2.32982
C-126-----	47 15 54.17 69 02 55.10	80 19 22 168 45 49	260 19 17 348 45 48	S-131----- S-132-----	134.7 168.3	2.12922 2.22608
C-127-----	47 15 58.16 69 02 52.40	24 44 53 52 25 11 115 01 56	204 44 51 232 25 04 295 01 53	C-126----- S-131----- S-132-----	135.7 239.2 98.9	2.13256 2.37871 1.99514
S-133-----	47 16 02.95 69 02 54.34	24 41 12 344 34 10	204 41 10 164 34 11	S-132----- C-127-----	116.8 153.5	2.06730 2.18600
C-128-----	47 16 03.64 69 02 51.69	5 00 46 39 19 52 68 59 42	185 00 45 219 19 48 248 59 40	C-127----- S-132----- S-133-----	170.0 164.8 59.6	2.23035 2.21695 1.77557
S-134-----	47 16 07.53 69 02 55.41	326 52 34 350 55 52	146 52 37 170 55 53	C-128----- S-133-----	143.2 143.1	2.15583 2.15554

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
C-129	47 16 07.77	0 25 44	180 25 44	S-133	148.7	2.17222
	69 02 54.29	72 39 39	252 39 38	S-134	24.8	1.39427
		336 47 42	156 47 44	C-128	138.5	2.14142
C-130	47 16 10.23	333 58 48	153 58 49	C-129	84.6	1.92751
	69 02 56.05	350 50 06	170 50 06	S-134	84.5	1.92694
S-135 (Rapids south base).	47 16 10.47	286 34 17	106 34 18	C-130	25.7	1.40946
	69 02 57.22	323 28 57	143 28 59	C-129	103.7	2.01593
		337 14 42	157 14 43	S-134	98.4	1.99308
S-136 (Rapids north base).	47 16 14.90	18 24 56	198 24 54	C-130	152.2	2.18235
	69 02 53.76	27 56 08	207 56 05	S-135	155.14	2.19072
Ref. Mon. C-117	47 16 15.22	29 03 10	209 03 07	C-130	176.3	2.24627
	69 02 51.98	36 54 02	216 53 58	S-135	183.6	2.26382
		75 27 21	255 27 20	S-136	38.8	1.58868
S-137	47 16 18.01	5 33 05	185 33 05	Ref. Mon. C-117	86.6	1.93750
	69 02 51.58	25 34 48	205 34 47	S-136	106.4	2.02676
C-132	47 16 18.44	17 39 06	197 39 05	Ref. Mon. C-117	104.4	2.01888
	69 02 50.47	32 21 07	212 21 05	S-136	129.3	2.11174
		60 12 28	240 12 27	S-137	26.8	1.42878
C-133	47 16 24.28	332 11 06	152 11 09	C-132	203.7	2.30903
	69 02 54.99	339 39 09	159 39 11	S-137	206.4	2.31470
S-138	47 16 24.63	289 21 55	109 21 56	C-133	32.6	1.51291
	69 02 56.46	326 37 43	146 37 47	C-132	228.7	2.35924
		333 21 30	153 21 33	S-137	228.6	2.35905
C-134	47 16 28.05	12 04 06	192 04 05	S-138	108.0	2.03352
	69 02 55.38	355 59 50	175 59 50	C-133	116.7	2.06716
S-139	47 16 28.26	0 41 03	180 41 03	S-138	112.2	2.05015
	69 02 56.39	287 14 37	107 14 38	C-134	22.2	1.34723
		346 33 49	166 33 50	C-133	126.5	2.10208
C-135	47 16 33.71	18 43 32	198 43 30	C-134	184.8	2.26675
	69 02 52.56	25 33 55	205 33 52	S-139	186.7	2.27120
Ref. Mon. S-127	47 16 29.84	222 09 19	42 09 23	C-135	161.2	2.20735
	69 02 57.71	318 39 47	138 39 49	C-134	74.0	1.86905
Ref. Mon. C-119	47 16 34.39	280 21 04	100 21 08	C-135	116.4	2.06601
	69 02 58.01	344 16 12	164 16 14	C-134	203.6	2.30873
		357 25 00	177 25 00	Ref. Mon. S-127	140.6	2.14786
S-143	47 16 27.52	215 08 26	35 08 31	Ref. Mon. C-119	259.5	2.41406
	69 03 05.11	245 15 18	65 15 23	Ref. Mon. S-127	171.4	2.23405
S-144	47 16 33.91	0 34 56	180 34 56	S-143	197.3	2.29521
	69 03 05.02	264 14 55	84 15 00	Ref. Mon. C-119	148.1	2.17049
		309 15 18	129 15 23	Ref. Mon. S-127	198.5	2.29766
S-141	47 16 25.93	115 50 15	295 50 11	S-143	112.8	2.05245
	69 03 00.28	158 00 32	338 00 29	S-144	265.8	2.42463
S-142	47 16 32.36	6 21 26	186 21 25	S-141	199.8	2.30055
	69 02 59.23	39 37 27	219 37 23	S-143	193.9	2.28764
		111 30 41	291 30 37	S-144	130.8	2.11654
C-138	47 16 38.12	34 23 07	214 23 04	S-144	157.7	2.19777
	69 03 00.78	349 37 12	169 37 13	S-142	181.0	2.25778



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
S-145-----	47 16 37.63 69 03 04.10	9 32 51 257 40 59 327 51 13	189 32 50 77 41 01 147 51 16	S-144----- C-138----- S-142-----	116.5 71.4 192.3	2.06639 1.85349 2.28408
C-139-----	47 16 42.84 69 03 02.90	8 51 59 342 59 35	188 51 58 162 59 36	S-145----- C-138-----	163.0 152.5	2.21216 2.18324
Ref. Mon. S-128----	47 16 43.01 69 03 09.55	272 06 33 309 20 09 325 26 18	92 06 38 129 20 15 145 26 22	C-139----- C-138----- S-145-----	139.7 238.2 201.8	2.14517 2.37686 2.30492
S-147 (Cross Lake south base).	47 16 47.39 69 03 06.95	21 59 17 328 46 27	201 59 15 148 46 30	Ref. Mon. S-128-- C-139-----	145.7 164.0	2.16353 2.21492
C-140-----	47 16 47.83 69 03 04.12	37 27 43 76 58 10 350 36 08	217 27 39 256 58 08 170 36 09	Ref. Mon. S-128-- S-147----- C-139-----	187.6 61.1 156.1	2.27322 1.78612 1.19352
S-148 (Cross Lake north base).	47 16 50.94 69 03 06.24	7 44 14 335 01 50	187 44 13 155 01 51	S-147----- C-140-----	110.65 105.7	2.04396 2.02428
Ref. Mon. C-120----	47 16 50.19 69 03 04.27	32 58 12 118 58 57 357 25 41	212 58 10 298 58 56 177 25 41	S-147----- S-148----- C-140-----	103.4 47.3 73.0	2.01444 1.67472 1.86349
S-149-----	47 16 57.27 69 03 04.27	0 01 10 11 57 13	180 01 10 191 57 12	Ref. Mon. C-120-- S-148-----	218.6 200.1	2.33972 2.30117
C-142-----	47 16 56.48 69 02 58.38	32 33 22 43 59 25 101 09 57	212 33 18 223 59 20 281 09 53	Ref. Mon. C-120-- S-148----- S-149-----	230.4 238.1 126.3	2.36245 2.37667 2.10136
Ref. Mon. S-129----	47 17 01.14 69 03 02.30	19 11 35 330 10 46	199 11 34 150 10 49	S-149----- C-142-----	126.3 165.7	2.10136 2.21921
C-143-----	47 17 03.72 69 02 58.89	29 34 56 41 50 40 357 13 21	209 34 52 221 50 37 177 13 21	S-149----- Ref. Mon. S-129-- C-142-----	229.0 107.2 223.9	2.35982 2.03028 2.34998
S-151-----	47 17 08.74 69 03 06.07	315 44 31 341 19 17	135 44 36 161 19 20	C-143----- Ref. Mon. S-129--	216.2 247.8	2.33482 2.39403
C-144-----	47 17 11.96 69 02 57.40	7 02 21 17 06 53 61 20 31	187 02 20 197 06 49 241 20 25	C-143----- Ref. Mon. S-129-- S-151-----	256.4 349.8 207.7	2.40891 2.54386 2.31752
S-152-----	47 17 17.40 69 03 04.57	6 43 00 318 03 19	186 42 59 138 03 24	S-151----- C-144-----	269.3 225.6	2.43020 2.35334
Ref. Mon. C-121----	47 17 19.30 69 03 00.05	21 11 29 58 12 58 346 10 28	201 11 25 238 12 55 166 10 30	S-151----- S-152----- C-144-----	350.0 111.8 233.4	2.54402 2.04832 2.36816
S-153-----	47 17 20.78 69 03 03.95	7 08 39 299 13 09 333 11 37	187 08 39 119 13 12 153 11 42	S-152----- Ref. Mon. C-121-- C-144-----	105.5 93.8 305.3	2.02322 1.97232 2.48469
C-146-----	47 17 28.48 69 03 02.74	6 05 21 348 43 39	186 05 20 168 43 41	S-153----- Ref. Mon. C-121--	239.1 289.1	2.37862 2.46112
S-154-----	47 17 27.30 69 03 06.07	242 27 36 332 53 22 347 30 14	62 27 38 152 53 26 167 30 15	C-146----- Ref. Mon. C-121-- S-153-----	78.9 277.6 206.2	1.89715 2.44339 2.31422
Ref. Mon. C-122----	47 17 36.73 69 03 08.35	335 10 14 350 40 00	155 10 18 170 40 02	C-146----- S-154-----	280.6 295.0	2.44806 2.46988

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° ' "	° ' "	° ' "			
S-155-----	47 17 34. 67 69 03 14. 89	245 11 38 306 48 34 320 50 09	65 11 43 126 48 43 140 50 16	Ref. Mon. C-122-- C-146----- S-154-----	151. 5 318. 9 293. 5	2. 18038 2. 50368 2. 46763
S-156-----	47 17 40. 48 69 03 13. 62	8 28 06 316 18 59	188 28 05 136 19 03	S-155----- Ref. Mon. C-122--	181. 5 160. 4	2. 25894 2. 20519
Ref. Mon. C-123---	47 17 40. 73 69 03 09. 89	29 19 51 84 26 10 345 20 35	209 19 47 264 26 07 165 20 36	S-155----- S-156----- Ref. Mon. C-122--	214. 7 78. 8 127. 8	2. 33186 1. 89660 2. 10651
Ref. Mon. C-124---	47 17 44. 38 69 03 10. 45	28 58 27 353 57 59	208 58 25 173 58 00	S-156----- Ref. Mon. C-123--	137. 4 113. 2	2. 13791 2. 05372
S-157-----	47 17 44. 00 69 03 13. 51	1 13 15 259 48 18 322 59 25	181 13 15 79 48 20 142 59 28	S-156----- Ref. Mon. C-124-- Ref. Mon. C-123--	108. 7 65. 3 126. 5	2. 03606 1. 81466 2. 10198
S-158-----	47 17 47. 51 69 03 14. 59	318 06 51 348 11 02	138 06 54 168 11 03	Ref. Mon. C-124-- S-157-----	130. 2 110. 8	2. 11460 2. 04465
C-150-----	47 17 48. 60 69 03 11. 96	12 55 34 58 48 51 346 21 10	192 55 33 238 48 49 166 21 11	S-157----- S-158----- Ref. Mon. C-124--	145. 6 64. 6 134. 2	2. 16323 1. 81026 2. 12766
C-151-----	47 17 51. 99 69 03 12. 60	16 52 06 352 43 40	196 52 04 172 43 40	S-158----- C-150-----	144. 4 105. 6	2. 15958 2. 02362
Ref. Mon. S-130---	47 17 52. 11 69 03 15. 95	273 07 49 322 20 12 348 38 07	93 07 52 142 20 15 168 38 08	C-151----- C-150----- S-158-----	70. 6 137. 2 144. 9	1. 84854 2. 13728 2. 16103
Ref. Mon. S-131---	47 17 57. 29 69 03 11. 50	7 58 29 30 16 57	187 58 29 210 16 54	C-151----- Ref. Mon. S-130--	165. 4 185. 2	2. 21852 2. 26768
C-152-----	47 17 53. 90 69 03 08. 45	55 52 55 70 42 40 148 33 11	235 52 53 250 42 35 328 33 09	C-151----- Ref. Mon. S-130-- Ref. Mon. S-131--	105. 1 166. 9 122. 9	2. 02179 2. 22237 2. 08943
Ref. Mon. C-125---	47 18 01. 83 69 03 02. 87	25 35 52 33 55 07 52 18 19	205 35 48 213 55 01 232 18 13	C-152----- C-151----- Ref. Mon. S-131--	271. 8 366. 4 229. 4	2. 43418 2. 56396 2. 36056
S-161-----	47 18 04. 65 69 03 11. 57	295 26 55 348 51 09 359 39 42	115 27 02 168 51 12 179 39 43	Ref. Mon. C-125-- C-152----- Ref. Mon. S-131--	202. 5 338. 5 227. 3	2. 30641 2. 52954 2. 35656
C-154-----	47 18 13. 99 69 03 01. 44	4 34 21 22 18 03 36 25 24	184 34 20 202 17 57 216 25 17	Ref. Mon. C-125-- Ref. Mon. S-131-- S-161-----	376. 7 557. 5 358. 5	2. 57600 2. 74621 2. 55452
Ref. Mon. S-133---	47 18 21. 63 69 03 16. 55	306 36 26 334 49 04 348 43 08	126 36 37 154 49 14 168 43 12	C-154----- Ref. Mon. C-125-- S-161-----	395. 4 675. 5 534. 6	2. 59709 2. 82964 2. 72806
Ref. Mon. S-132---	47 18 15. 26 69 03 08. 82	140 27 05 284 10 21	320 26 59 104 10 26	Ref. Mon. S-133-- C-154-----	255. 1 159. 9	2. 40665 2. 20384
C-155-----	47 18 22. 68 69 02 55. 01	26 43 20 51 42 03 85 54 20	206 43 15 231 41 53 265 54 04	C-154----- Ref. Mon. S-132-- Ref. Mon. S-133--	300. 3 369. 6 453. 6	2. 47756 2. 56774 2. 65669
S-164-----	47 18 48. 17 69 03 39. 31	310 13 33 329 44 23	130 14 06 149 44 40	C-155----- Ref. Mon. S-133--	1, 218. 9 948. 9	3. 08598 2. 97724

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° ' "	° ' "	° ' "			
C-156-----	47 18 56.26 69 03 01.34	16 38 08 72 36 40 352 41 50	196 37 57 252 36 12 172 41 55	Ref. Mon. S-133--- S-164----- C-155-----	1, 116.2 835.9 1, 045.6	3. 04775 2. 92213 3. 01936
S-165-----	47 19 17.48 69 03 37.26	2 43 30 310 58 03	182 43 28 130 58 29	S-164----- C-156-----	906.1 999.3	2. 95717 2. 99969
C-157-----	47 19 14.20 69 03 02.65	43 46 30 97 56 14 357 08 56	223 46 03 277 55 49 177 08 57	S-164----- S-165----- C-156-----	1, 113.1 733.9 554.6	3. 04652 2. 86564 2. 74398
S-166-----	47 19 40.19 69 03 33.41	6 34 48 321 10 13	186 34 45 141 10 35	S-165----- C-157-----	706.0 1, 030.3	2. 84879 3. 01295
C-158-----	47 19 33.73 69 03 01.54	2 12 41 56 13 11 106 36 02	182 12 40 236 12 45 286 35 39	C-157----- S-165----- S-166-----	603.6 902.5 698.3	2. 78076 2. 95546 2. 84404
S-167 (Ecc. Ref. Mon. S-135).	47 20 36.83 69 03 38.58	338 14 30 356 26 51	158 14 57 176 26 55	C-158----- S-166-----	2, 098.3 1, 752.8	3. 32186 3. 24372
C-159-----	47 20 18.24 69 02 55.01	5 41 57 34 27 27 122 07 14	185 41 52 214 26 59 302 06 42	C-158----- S-166----- S-167-----	1, 381.5 1, 425.2 1, 080.0	3. 14035 3. 15388 3. 03343
S-168-----	47 21 39.29 69 03 38.44	0 05 21 339 59 02	180 05 21 159 59 34	S-167----- C-159-----	1, 928.9 2, 663.9	3. 28530 3. 42551
C-160-----	47 21 41.43 69 02 53.70	0 36 46 25 16 52 85 58 32	180 36 45 205 16 19 265 57 59	C-159----- S-167----- S-168-----	2, 569.3 2, 206.2 941.2	3. 40982 3. 34365 2. 97368
C-161-----	47 21 53.66 69 02 57.22	62 50 52 348 56 17	242 50 22 168 56 20	S-168----- C-160-----	972.2 384.7	2. 98775 2. 58517
S-169-----	47 22 01.05 69 03 42.02	283 38 55 300 51 34 353 37 37	103 39 28 120 52 10 173 37 40	C-161----- C-160----- S-168-----	967.4 1, 181.1 676.2	2. 98559 3. 07230 2. 83010
Ref. Mon. C-130----	47 22 27.47 69 02 55.08	2 27 21 50 21 45	182 27 19 230 21 10	C-161----- S-169-----	1, 045.2 1, 278.8	3. 01918 3. 10680
Ref. Mon. S-137-A--	47 22 36.50 69 03 19.90	22 58 00 298 10 26 340 12 40	202 57 44 118 10 45 160 12 57	S-169----- Ref. Mon. C-130-- C-161-----	1, 189.0 590.7 1, 406.2	3. 07520 2. 77140 3. 14804
C-163 (Beau Lake south base).	47 22 40.89 69 02 49.30	16 19 17 78 05 23	196 19 13 258 05 00	Ref. Mon. C-130-- Ref. Mon. S-137-A--	431.8 656.2	2. 63529 2. 81704
Ref. Mon. C-131 (Beau Lake north base).	47 22 46.05 69 02 58.48	56 44 27 309 35 51 352 55 05	236 44 11 129 35 58 172 55 08	Ref. Mon. S-137-A-- C-163----- Ref. Mon. C-130--	537.5 249.97 578.1	2. 73038 2. 39789 2. 76204
Ref. Mon. C-133----	47 22 52.71 69 02 38.22	32 27 53 64 09 29	212 27 45 244 09 14	C-163----- Ref. Mon. C-131--	432.8 472.1	2. 63625 2. 67405
Ref. Mon. C-132----	47 22 57.80 69 02 49.28	0 02 13 28 00 09 304 05 54	180 02 13 208 00 02 124 06 02	C-163----- Ref. Mon. C-131-- Ref. Mon. C-133--	522.2 411.0 280.1	2. 71782 2. 61379 2. 44732
Ref. Mon. C-134----	47 23 07.79 69 02 21.19	37 30 30 62 21 53	217 30 17 242 21 32	Ref. Mon. C-133-- Ref. Mon. C-132--	586.9 665.2	2. 76860 2. 82295
S-173-----	47 23 11.78 69 02 33.23	10 05 14 37 57 04 295 58 51	190 05 10 217 56 52 115 59 00	Ref. Mon. C-133-- Ref. Mon. C-132-- Ref. Mon. C-134--	598.0 547.4 281.0	2. 77668 2. 73834 2. 44874



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° ' "	° ' "	° ' "			
C-166-----	47 23 28.40 69 02 30.35	6 42 40 343 11 42	186 42 38 163 11 49	S-173----- Ref. Mon. C-134--	516.9 664.8	2.71340 2.82272
Ref. Mon. C-135----	47 23 29.11 69 02 42.80	274 49 11 325 26 48 339 26 17	94 49 21 145 27 05 159 26 25	C-166----- Ref. Mon. C-134-- S-173-----	262.1 799.5 571.8	2.41852 2.90282 2.75724
C-167 (azimuth station).	47 23 35.80 69 02 33.96	41 55 44 341 40 17	221 55 37 161 40 20	Ref. Mon. C-135-- C-166-----	277.6 240.8	2.44341 2.38161
Ref. Mon. C-136----	47 23 37.91 69 02 41.83	4 17 13 291 31 32 320 38 44	184 17 12 111 31 38 140 38 53	Ref. Mon. C-135-- C-167----- C-166-----	272.4 177.5 379.8	2.43524 2.24920 2.57957
C-168-----	47 23 40.15 69 02 25.76	51 58 08 78 23 08	231 58 02 258 22 56	C-167----- Ref. Mon. C-136--	218.1 344.0	2.33872 2.53653
Ref. Mon. C-137----	47 23 43.88 69 02 31.37	12 15 34 49 57 39 314 21 42	192 15 32 229 57 31 134 21 46	C-167----- Ref. Mon. C-136-- C-168-----	255.2 286.5 164.5	2.40695 2.45707 2.21620
C-169-----	47 23 43.52 69 02 16.99	60 32 01 92 05 52	240 31 55 272 05 42	C-168----- Ref. Mon. C-137--	211.4 301.9	2.32507 2.47980
Ref. Mon. S-138----	47 23 46.66 69 02 21.82	22 21 19 66 43 50 313 49 09	202 21 16 246 43 43 133 49 12	C-168----- Ref. Mon. C-137-- C-169-----	217.5 218.1 140.4	2.33754 2.33865 2.14734
Ref. Mon. C-138----	47 23 49.45 69 02 10.69	35 48 38 69 47 23	215 48 33 249 47 15	C-169----- Ref. Mon. S-138--	225.8 248.7	2.35379 2.39576
S-178-----	47 23 51.38 69 02 17.75	30 22 31 291 54 37 356 13 40	210 22 28 111 54 42 176 13 40	Ref. Mon. S-138-- Ref. Mon. C-138-- C-169-----	168.7 159.7 243.3	2.22705 2.20322 2.38606
C-171-----	47 23 58.10 69 02 04.67	25 18 13 52 53 16	205 18 09 232 53 07	Ref. Mon. C-138-- S-178-----	295.7 344.2	2.47078 2.53684
Ref. Mon. C-139----	47 23 59.58 69 02 11.96	25 38 53 286 33 17 355 08 32	205 38 49 106 33 22 175 08 33	S-178----- C-171----- Ref. Mon. C-138--	280.8 159.6 313.9	2.44845 2.20290 2.49676
C-172-----	47 24 01.76 69 02 06.51	59 28 15 341 07 52	239 28 11 161 07 53	Ref. Mon. C-139-- C-171-----	132.8 119.3	2.12305 2.07669
Ref. Mon. C-141----	47 24 07.83 69 02 05.10	8 58 04 29 26 56	188 58 03 209 26 51	C-172----- Ref. Mon. C-139--	189.8 292.8	2.27837 2.46654
S-180-----	47 24 06.33 69 02 29.42	264 48 22 299 40 07	84 48 40 119 40 20	Ref. Mon. C-141-- Ref. Mon. C-139--	512.2 421.4	2.70944 2.62471
Ref. Mon. C-140----	47 24 12.00 69 02 22.90	37 59 13 289 01 51 329 07 41	217 59 08 109 02 04 149 07 49	S-180----- Ref. Mon. C-141-- Ref. Mon. C-139--	222.2 394.9 447.1	2.34675 2.59651 2.65038
Ref. Mon. S-139----	47 24 09.55 69 02 35.99	254 35 04 305 48 55	74 35 14 125 49 00	Ref. Mon. C-140-- S-180-----	284.8 169.9	2.45453 2.23025
Ref. Mon. S-140----	47 24 16.15 69 02 35.88	0 38 27 295 11 08 335 54 58	180 38 27 115 11 18 155 55 03	Ref. Mon. S-139-- Ref. Mon. C-140-- S-180-----	203.8 300.9 332.1	2.30910 2.47838 2.52124
C-173-----	47 24 06.15 69 01 55.55	37 34 18 59 27 29 104 33 35	217 34 11 239 27 21 284 33 28	C-171----- C-172----- Ref. Mon. C-141--	313.5 266.7 206.8	2.49617 2.42605 2.31545

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° ' "	° ' "	° ' "			
Ref. Mon. S-141	47 24 11.85 69 01 58.39	48 34 23 341 18 58	228 34 18 161 19 00	Ref. Mon. C-141 C-173	187.5 185.8	2.27299 2.26911
C-174	47 24 10.64 69 01 54.42	9 43 31 68 50 40 114 11 50	189 43 30 248 50 32 294 11 47	C-173 Ref. Mon. C-141 Ref. Mon. S-141	140.6 240.0 91.3	2.14808 2.38030 1.96049
Ref. Mon. C-142	47 24 16.81 69 01 58.06	2 36 41 338 11 23	182 36 41 158 11 26	Ref. Mon. S-141 C-174	153.4 205.3	2.18579 2.31249
S-186	47 24 16.22 69 02 03.42	260 49 01 312 25 48 322 01 47	80 49 05 132 25 55 142 01 51	Ref. Mon. C-142 C-174 Ref. Mon. S-141	113.9 255.6 171.3	2.05634 2.40763 2.23381
Ref. Mon. S-142	47 24 23.62 69 02 00.90	13 01 56 344 11 38	193 01 54 164 11 40	S-186 Ref. Mon. C-142	234.5 218.5	2.37008 2.33949
C-176	47 24 23.95 69 01 56.42	8 52 38 31 36 27 83 49 47	188 52 37 211 36 22 263 49 44	Ref. Mon. C-142 S-186 Ref. Mon. S-142	223.1 280.1 94.5	2.34847 2.44737 1.97539
Ref. Mon. C-143	47 24 33.05 69 01 57.11	15 15 39 357 02 55	195 15 36 177 02 55	Ref. Mon. S-142 C-176	301.9 281.4	2.47981 2.44938
C-177 (Quebec south base).	47 24 33.52 69 01 52.38	15 56 29 30 15 07 81 32 28	195 56 26 210 15 01 261 32 25	C-176 Ref. Mon. S-142 Ref. Mon. C-143	307.6 354.2 100.1	2.48800 2.54921 2.00026
S-190	47 24 36.41 69 01 57.43	310 09 24 356 17 10	130 09 28 176 17 11	C-177 Ref. Mon. C-143	138.3 104.1	2.14089 2.01762
C-178 (Quebec north base).	47 24 38.15 69 01 54.55	18 47 05 48 18 54 342 24 21	198 47 04 228 18 52 162 24 23	Ref. Mon. C-143 S-190 C-177	166.6 80.8 149.99	2.22158 1.90768 2.17605
S-192	47 24 45.57 69 02 06.00	313 39 38 327 34 21	133 39 46 147 34 27	C-178 S-190	331.9 335.2	2.52100 2.52526
C-179	47 24 47.08 69 01 57.54	75 21 06 347 10 11 359 35 18	255 21 00 167 10 13 179 35 18	S-192 C-178 S-190	183.3 282.6 329.3	2.26319 2.45110 2.51756
Ref. Mon. C-145	47 24 48.25 69 02 07.09	280 17 26 344 36 17	100 17 33 164 36 18	C-179 S-192	203.4 85.8	2.30834 1.93336
C-180	47 24 53.01 69 02 00.50	26 39 02 43 12 22 341 16 54	206 38 58 223 12 17 161 16 56	S-192 Ref. Mon. C-145 C-179	256.9 201.6 193.5	2.40983 2.30449 2.28672
Ref. Mon. C-146	47 24 56.06 69 02 08.08	300 38 30 355 02 56	120 38 36 175 02 57	C-180 Ref. Mon. C-145	184.7 242.0	2.26644 2.38378
Ref. Mon. S-144	47 24 52.06 69 02 12.59	217 26 14 263 25 12 315 35 30	37 26 17 83 25 21 135 35 34	Ref. Mon. C-146 C-180 Ref. Mon. C-145	155.3 255.0 164.8	2.19130 2.40656 2.21696
C-182	47 24 59.11 69 02 23.92	285 50 36 312 29 32	105 50 47 132 29 41	Ref. Mon. C-146 Ref. Mon. S-144	345.0 322.0	2.53782 2.50792
S 195	47 24 54.38 69 02 29.63	219 21 33 263 27 39 281 20 01	39 21 38 83 27 55 101 20 14	C-182 Ref. Mon. C-146 Ref. Mon. S-144	188.8 454.6 364.3	2.27591 2.65759 2.56144
Ref. Mon. S-145	47 25 05.27 69 02 30.56	323 47 56 356 39 40	143 48 00 176 39 40	C-182 S-195	235.9 336.9	2.37273 2.52747

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
C-183-----	47 25 07.86 69 02 23.79	0 34 26 16 23 05 60 35 43	180 34 26 196 23 00 240 35 38	C-182----- S-195----- Ref. Mon. S-145--	270.4 434.0 163.0	2.43204 2.63746 2.21228
S-197-----	47 25 11.47 69 02 27.02	21 13 18 328 39 40	201 13 16 148 39 43	Ref. Mon. S-145-- C-183-----	205.2 130.3	2.31221 2.11480
C-184-----	47 25 12.02 69 02 22.38	12 54 43 39 27 39 80 06 24	192 54 42 219 27 33 260 06 20	C-183----- Ref. Mon. S-145-- S-197-----	131.5 269.7 98.6	2.11899 2.43091 1.99387
S-198-----	47 25 14.60 69 02 27.69	305 44 03 351 46 13	125 44 07 171 46 13	C-184----- S-197-----	136.9 97.9	2.13649 1.99087
Ref. Mon. C-147----	47 25 15.87 69 02 22.94	32 09 11 68 35 00 354 23 11	212 09 08 248 34 57 174 23 12	S-197----- S-198----- C-184-----	160.5 106.8 119.6	2.20559 2.02869 2.07756
Ref. Mon. C-148----	47 25 21.93 69 02 24.40	16 56 31 350 43 15	196 56 29 170 43 16	S-198----- Ref. Mon. C-147--	236.4 189.6	2.37361 2.27782
S-199-----	47 25 21.93 69 02 31.45	270 00 23 316 22 50 340 46 23	90 00 28 136 22 56 160 46 26	Ref. Mon. C-148-- Ref. Mon. C-147-- S-198-----	147.7 258.5 239.5	2.16952 2.41244 2.37930
C-187-----	47 25 27.75 69 02 29.48	12 55 43 329 21 41	192 55 42 149 21 45	S-199----- Ref. Mon. C-148--	184.4 208.9	2.26584 2.32003
Ref. Mon. C-149----	47 25 27.36 69 02 33.45	261 54 30 311 31 25 345 58 56	81 54 32 131 31 31 165 58 57	C-187----- Ref. Mon. C-148-- S-199-----	84.0 253.3 173.1	1.92440 2.40370 2.23826
S-201-----	47 25 30.99 69 02 34.12	315 48 03 352 47 39	135 48 06 172 47 40	C-187----- Ref. Mon. C-149--	139.6 112.8	2.14496 2.05237
C-188-----	47 25 31.72 69 02 30.62	23 47 03 72 59 01 348 56 12	203 47 01 252 58 58 168 56 12	Ref. Mon. C-149-- S-201----- C-187-----	146.9 76.7 124.9	2.16688 1.88498 2.09648
S-202-----	47 25 37.43 69 02 37.24	321 50 14 341 49 46	141 50 19 161 49 48	C-188----- S-201-----	224.4 209.3	2.35100 2.32082
Ref. Mon. C-150----	47 25 38.96 69 02 35.44	38 27 33 335 43 32 353 36 33	218 27 32 155 43 36 173 36 34	S-202----- C-188----- S-201-----	60.6 245.6 247.9	1.78241 2.39021 2.39423
S-203 (Blue River east base).	47 25 42.04 69 02 41.09	308 43 53 330 26 52	128 43 57 150 26 55	Ref. Mon. C-150-- S-202-----	151.8 163.8	2.18139 2.21419
C-190-----	47 25 42.67 69 02 37.02	1 36 57 77 14 33 343 50 34	181 36 57 257 14 30 163 50 35	S-202----- S-203----- Ref. Mon. C-150--	161.8 87.5 119.0	2.20907 1.94194 2.07564
C-191-----	47 25 45.66 69 02 38.81	23 12 10 337 57 54	203 12 08 157 57 55	S-203----- C-190-----	121.6 99.7	2.08495 1.99884
C-192-----	47 25 45.74 69 02 43.46	271 23 31 305 05 31 336 30 07	91 23 34 125 05 36 156 30 09	C-191----- C-190----- S-203-----	97.6 164.9 124.5	1.98928 2.21730 2.09503
Ref. Mon. C-151 (Blue River west base and azimuth station).	47 25 41.12 69 02 48.12	214 22 58 259 03 09	34 23 01 79 03 14	C-192----- S-203-----	172.8 149.94	2.23756 2.17592



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
C-193-----	47 25 45.25 69 02 50.46	264 10 39 296 49 02 339 00 05	84 10 44 116 49 09 159 00 07	C-192----- S-203----- Ref. Mon. C-151--	147.3 219.9 136.7	2.16834 2.34215 2.13592
C-194-----	47 25 39.47 69 02 59.86	227 49 56 258 19 54	47 50 03 78 20 03	C-193----- Ref. Mon. C-151--	265.9 251.3	2.42467 2.40012
S-205-----	47 25 37.88 69 02 56.73	126 55 09 210 01 23 241 01 10	306 55 07 30 01 28 61 01 17	C-194----- C-193----- Ref. Mon. C-151--	81.9 263.0 206.4	1.91334 2.41990 2.31477
S-211-----	47 25 35.21 69 03 06.44	226 19 53 247 56 02	46 19 58 67 56 09	C-194----- S-205-----	190.7 219.5	2.28029 2.34141
C-195-----	47 25 38.08 69 03 05.87	7 39 55 251 04 52 271 47 51	187 39 54 71 04 56 91 47 57	S-211----- C-194----- S-205-----	89.3 133.2 191.6	1.95067 2.12455 2.28240
S-206-----	47 25 30.46 69 02 52.99	117 28 12 161 04 27	297 28 02 341 04 24	S-211----- S-205-----	317.8 242.1	2.50212 2.38403
S-210-----	47 25 31.20 69 03 05.42	170 11 20 221 24 38 274 58 32	350 11 19 41 24 43 94 58 40	S-211----- S-205----- S-206-----	125.7 275.1 261.5	2.09944 2.43954 2.41749
Ref. Mon. S-146---	47 25 20.16 69 03 02.63	170 16 45 212 24 49	350 16 43 32 24 56	S-210----- S-206-----	346.0 377.1	2.53902 2.57640
S-208-----	47 25 19.61 69 03 10.55	227 40 26 264 08 26	47 40 39 84 08 32	S-206----- Ref. Mon. S-146---	498.0 167.0	2.69727 2.22269
Ref. Mon. S-147---	47 25 26.77 69 03 07.39	16 40 23 196 51 06 333 55 53	196 40 21 16 51 08 153 55 57	S-208----- S-210----- Ref. Mon. S-146---	230.9 143.0 227.3	2.36342 2.15529 2.35653
S-212-----	47 25 38.44 69 03 11.62	275 24 32 312 36 15	95 24 37 132 36 19	C-195----- S-211-----	121.0 147.5	2.08293 2.16891
C-196-----	47 25 39.43 69 03 09.16	59 25 49 301 17 56 336 23 01	239 25 47 121 17 59 156 23 03	S-212----- C-195----- S-211-----	59.9 80.6 142.3	1.77764 1.90653 2.15312
C-197-----	47 25 43.42 69 03 13.06	326 27 35 348 55 01	146 27 38 168 55 02	C-196----- S-212-----	147.9 156.7	2.16997 2.19500
Ref. Mon. S-149---	47 25 42.49 69 03 15.64	242 05 45 304 49 47 326 00 33	62 05 47 124 49 52 146 00 36	C-197----- C-196----- S-212-----	61.3 165.6 150.8	1.78767 2.21901 2.17847
S-214-----	47 25 44.15 69 03 18.82	280 27 31 307 26 16	100 27 35 127 26 18	C-197----- Ref. Mon. S-149---	122.9 83.9	2.08942 1.92378
Ref. Mon. C-153---	47 25 46.22 69 03 18.16	12 15 05 308 55 07 335 22 42	192 15 04 128 55 10 155 22 43	S-214----- C-197----- Ref. Mon. S-149---	65.5 137.4 126.5	1.81636 2.13804 2.10221
S-215-----	47 25 46.74 69 03 24.75	276 39 28 302 50 06	96 39 33 122 50 10	Ref. Mon. C-153-- S-214-----	139.0 147.8	2.14312 2.16970
Ref. Mon. C-154---	47 25 48.84 69 03 23.75	17 57 20 304 39 54 324 33 47	197 57 19 124 39 59 144 33 51	S-215----- Ref. Mon. C-153-- S-214-----	68.2 142.4 178.0	1.83356 2.15336 2.25032
S-216-----	47 25 52.24 69 03 27.50	323 09 24 341 14 15	143 09 26 161 14 17	Ref. Mon. C-154-- S-215-----	131.3 179.5	2.11831 2.25399

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS— continued						
Ref. Mon. S-150----	47 25 54.04	42 54 16	222 54 14	S-216-----	75.8	1.87970
	69 03 25.04	350 24 44	170 24 44	Ref. Mon. C-154--	162.9	2.21189
		358 26 45	178 26 45	S-215-----	225.5	2.35323
S-217-----	47 25 55.14	285 25 00	105 25 04	Ref. Mon. S-150--	127.9	2.10687
	69 03 30.92	321 18 47	141 18 50	S-216-----	114.7	2.05955
Ref. Mon. C-155----	47 25 56.59	39 22 44	219 22 42	S-217-----	57.9	1.76286
	69 03 29.17	312 18 28	132 18 32	Ref. Mon. S-150--	117.0	2.06830
		345 24 58	165 25 00	S-216-----	138.8	2.14231
Ref. Mon. C-156----	47 25 57.93	285 10 00	105 10 06	Ref. Mon. C-155--	157.7	2.19782
	69 03 36.43	306 41 31	126 41 35	S-217-----	144.0	2.15831
S-218-----	47 25 55.36	185 41 28	5 41 28	Ref. Mon. C-156--	79.7	1.90127
	69 03 36.81	256 38 35	76 38 41	Ref. Mon. C-155--	164.6	2.21631
		273 08 11	93 08 15	S-217-----	123.5	2.09181
S-219-----	47 25 56.65	256 10 10	76 10 16	Ref. Mon. C-156--	165.2	2.21788
	69 03 44.08	284 37 40	104 37 46	S-218-----	157.6	2.19748
Ref. Mon. C-157----	47 25 59.77	7 28 02	187 28 02	S-219-----	97.3	1.98802
	69 03 43.48	291 05 27	111 05 32	Ref. Mon. C-156--	158.3	2.19956
		314 15 28	134 15 33	S-218-----	195.2	2.29054
C-206-----	47 25 58.84	262 39 45	82 39 53	Ref. Mon. C-157--	225.7	2.35344
	69 03 54.16	287 45 35	107 45 42	S-219-----	221.7	2.34583
C-205-----	47 26 03.76	26 14 59	206 14 56	C-206-----	169.5	2.22924
	69 03 50.58	309 37 29	129 37 34	Ref. Mon. C-157--	193.2	2.28606
		328 12 14	148 12 18	S-219-----	258.5	2.41241
Ref. Mon. C-158----	47 25 51.67	152 40 25	332 40 21	C-206-----	249.4	2.39681
	69 03 48.70	212 08 41	32 08 44	S-219-----	181.7	2.25946
C-208-----	47 25 51.86	212 13 46	32 13 51	C-206-----	254.7	2.40603
	69 04 00.64	271 23 14	91 23 23	Ref. Mon. C-158--	250.4	2.39861
S-220-----	47 25 50.24	98 14 16	278 14 03	C-208-----	351.2	2.54560
	69 03 44.06	114 27 14	294 27 10	Ref. Mon. C-158--	106.9	2.02893
		141 27 11	321 27 03	C-206-----	339.8	2.53125
		179 49 39	359 49 39	S-219-----	198.1	2.29695
S-221-----	47 25 49.72	114 14 22	294 14 16	C-208-----	161.5	2.20809
	69 03 53.62	239 42 16	59 42 19	Ref. Mon. C-158--	119.4	2.07693
		265 26 26	85 26 33	S-220-----	201.0	2.30323
Ref. Mon. S-151----	47 25 47.26	183 13 57	3 13 57	C-208-----	142.6	2.15402
	69 04 01.03	243 54 17	63 54 22	S-221-----	172.9	2.23780
C-209-----	47 25 49.26	236 51 29	56 51 33	C-208-----	147.2	2.16798
	69 04 06.53	266 59 39	86 59 49	S-221-----	270.9	2.43278
		298 13 25	118 13 29	Ref. Mon. S-151--	130.8	2.11656
Ref. Mon. C-159 (Kelly Rapids east base).	47 25 41.21	199 58 19	19 58 22	C-209-----	264.3	2.42216
	69 04 10.83	227 45 52	47 45 59	Ref. Mon. S-151--	277.6	2.44340
S-223-----	47 25 40.19	107 00 41	287 00 38	Ref. Mon. C-159--	108.4	2.03520
	69 04 05.89	177 15 37	357 15 37	C-209-----	280.5	2.44791
		205 00 21	25 00 25	Ref. Mon. S-151--	240.9	2.38182
Ref. Mon. S-152----	47 25 34.74	214 36 55	34 37 00	Ref. Mon. C-159--	242.9	2.38534
	69 04 17.42	235 10 12	55 10 20	S-223-----	294.4	2.46893
C-211 (Kelly Rapids west base).	47 25 39.58	255 25 19	75 25 26	Ref. Mon. C-159--	200.01	2.30105
	69 04 20.07	266 24 57	86 25 07	S-223-----	297.9	2.47400
		339 35 49	159 35 51	Ref. Mon. S-152--	159.5	2.20284

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° ' "	° ' "	° ' "			
Ref. Mon. S-153----	47 25 32.33 69 04 35.09	234 32 37 258 36 22	54 32 48 78 36 35	C-211----- Ref. Mon. S-152--	386.4 377.8	2.58707 2.57731
Ref. Mon. C-160----	47 25 39.48 69 04 39.85	269 33 36 287 17 05 335 40 44	89 33 51 107 17 22 155 40 48	C-211----- Ref. Mon. S-152-- Ref. Mon. S-153--	414.7 492.5 242.5	2.61769 2.69242 2.38472
C-213-----	47 25 35.80 69 04 47.02	232 52 18 293 12 00	52 52 23 113 12 09	Ref. Mon. C-160-- Ref. Mon. S-153--	188.5 272.2	2.27526 2.43483
S-226-----	47 25 29.37 69 04 43.05	157 15 59 192 06 40 241 17 16	337 15 56 12 06 42 61 17 22	C-213----- Ref. Mon. C-160-- Ref. Mon. S-153--	215.4 319.5 190.3	2.33321 2.50451 2.27948
C-214-----	47 25 29.14 69 05 00.46	233 52 23 268 54 19	53 52 33 88 54 32	C-213----- S-226-----	348.8 365.0	2.54252 2.56230
S-227-----	47 25 24.69 69 04 59.73	173 36 48 217 49 37 247 33 40	353 36 47 37 49 46 67 33 52	C-214----- C-213----- S-226-----	138.2 434.3 378.2	2.14065 2.63774 2.57772
S-228-----	47 25 28.92 69 05 15.67	268 47 02 291 21 09	88 47 13 111 21 21	C-214----- S-227-----	318.8 358.7	2.50352 2.55478
Ref. Mon. C-161----	47 25 33.09 69 05 16.34	290 08 52 306 42 01 353 48 59	110 09 03 126 42 13 173 48 59	C-214----- S-227----- S-228-----	354.4 434.1 129.6	2.54946 2.63762 2.11254
S-229-----	47 25 32.99 69 05 36.39	269 33 23 286 07 51	89 33 38 106 08 06	Ref. Mon. C-161-- S-228-----	420.2 452.0	2.62348 2.65511
C-216-----	47 25 39.11 69 05 34.46	12 05 43 296 04 07 308 37 42	192 05 41 116 04 20 128 37 55	S-229----- Ref. Mon. C-161-- S-228-----	193.3 422.7 503.9	2.28623 2.62604 2.70237
S-230-----	47 25 36.08 69 05 46.79	250 07 32 293 40 37	70 07 41 113 40 45	C-216----- S-229-----	274.8 238.0	2.43907 2.37659
C-217-----	47 25 41.44 69 05 50.41	282 07 28 311 35 34 335 20 01	102 07 40 131 35 44 155 20 04	C-216----- S-229----- S-230-----	342.0 392.9 181.9	2.53401 2.59432 2.25974
Ref. Mon. S-155----	47 25 36.06 69 05 55.00	210 04 49 269 41 12	30 04 52 89 45 18	C-217----- S-230-----	191.8 172.1	2.28295 2.23567
S-232-----	47 25 41.51 69 05 55.01	271 21 38 314 11 29 359 53 51	91 21 41 134 11 35 179 53 51	C-217----- S-230----- Ref. Mon. S-155--	96.5 240.4 168.3	1.98445 2.38089 2.22608
S-233-----	47 25 48.70 69 05 56.85	328 56 50 350 08 33	148 56 54 170 08 34	C-217----- S-232-----	261.8 225.3	2.41791 2.35273
C-218-----	47 25 49.95 69 05 50.96	18 02 52 72 33 32 357 30 00	198 02 49 252 33 28 177 30 00	S-232----- S-233----- C-217-----	274.3 129.5 263.3	2.43817 2.11223 2.42048
Ref. Mon. C-162--	47 25 54.10 69 05 53.10	25 15 44 340 41 35	205 15 41 160 41 36	S-233----- C-218-----	184.4 135.6	2.26580 2.13225
C-220-----	47 25 54.34 69 06 01.47	272 28 17 301 35 53 330 57 37	92 28 23 121 36 00 150 57 40	Ref. Mon. C-162-- C-218----- S-233-----	175.7 258.7 199.4	2.24469 2.41278 2.29979
S-234-----	47 25 47.17 69 06 10.58	220 44 47 260 40 51	40 44 54 80 41 01	C-220----- S-233-----	292.5 291.5	2.46606 2.46471



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
C-221-----	47 25 52.39 69 06 16.30	259 01 17 285 38 02 323 22 21	79 01 28 105 38 16 143 22 25	C-220----- S-233----- S-234-----	316.6 423.3 201.0	2.50048 2.62661 2.30312
Ref. Mon. C-163----	47 25 47.39 69 06 25.61	231 38 53 271 15 05	51 39 00 91 15 16	C-221----- S-234-----	248.8 315.1	2.39590 2.49847
S-235-----	47 25 39.73 69 06 19.50	151 35 17 189 44 08 219 08 14	331 35 13 9 44 11 39 08 21	Ref. Mon. C-163-- C-221----- S-234-----	269.1 396.8 296.3	2.42991 2.59856 2.47169
Ref. Mon. S-156----	47 25 38.86 69 06 31.37	204 37 36 263 52 03	24 37 41 83 52 12	Ref. Mon. C-163-- S-235-----	289.8 250.2	2.46205 2.39834
S-237-----	47 25 47.14 69 06 31.43	266 22 33 312 28 00 359 41 53	86 22 38 132 28 09 179 41 53	Ref. Mon. C-163-- S-235----- Ref. Mon. S-156--	122.3 339.1 255.7	2.08756 2.53032 2.40770
S-238-----	47 25 58.56 69 06 32.77	336 28 13 355 26 54	156 28 18 175 26 55	Ref. Mon. C-163-- S-237-----	376.1 353.7	2.57534 2.54864
C-223-----	47 25 59.35 69 06 25.84	17 16 29 80 31 39 359 14 18	197 16 24 260 31 34 179 14 18	S-237----- S-238----- Ref. Mon. C-163--	394.6 147.3 369.1	2.59619 2.16806 2.56718
Ref. Mon. C-164----	47 26 13.49 69 06 35.48	335 10 59 352 59 16	155 11 06 172 59 18	C-223----- S-238-----	481.1 464.4	2.68226 2.66690
Ref. Mon. S-157----	47 26 08.42 69 06 46.87	236 45 28 302 27 21 315 52 04	56 45 36 122 27 36 135 52 14	Ref. Mon. C-164-- C-223----- S-238-----	285.4 522.2 424.2	2.45544 2.71785 2.62761
S-240-----	47 26 17.02 69 06 53.60	286 00 51 332 01 39	106 01 05 152 01 45	Ref. Mon. C-164-- Ref. Mon. S-157--	395.0 300.5	2.59657 2.47788
C-225-----	47 26 21.75 69 06 50.11	26 32 32 309 47 07 350 38 21	206 32 29 129 47 18 170 38 24	S-240----- Ref. Mon. C-164-- Ref. Mon. S-157--	163.5 398.9 417.3	2.21365 2.60090 2.62044
C-226-----	47 26 23.31 69 07 03.10	279 59 20 314 17 30	99 59 30 134 17 37	C-225----- S-240-----	276.4 278.2	2.44152 2.44433
S-241-----	47 26 19.50 69 07 05.57	203 44 14 257 51 04 286 58 31	23 44 16 77 51 16 106 58 40	C-226----- C-225----- S-240-----	128.5 331.4 262.3	2.10907 2.52031 2.41880
S-242-----	47 26 26.08 69 07 13.94	290 40 09 319 12 51	110 40 17 139 12 57	C-226----- S-241-----	242.9 268.6	2.38535 2.42916
C-227-----	47 26 28.12 69 07 09.64	55 06 52 317 18 07 342 13 38	235 06 49 137 18 12 162 13 41	S-242----- C-226----- S-241-----	109.9 202.2 279.6	2.04092 2.30568 2.44652
S-243-----	47 26 31.47 69 07 19.22	297 17 51 326 24 44	117 17 58 146 24 48	C-227----- S-242-----	225.8 199.7	2.35368 2.30047
Ref. Mon. C-165----	47 26 32.66 69 07 16.33	58 44 19 315 01 33 346 10 08	238 44 17 135 01 38 166 10 10	S-243----- C-227----- S-242-----	70.8 198.3 209.2	1.84982 2.29728 2.32052
C-229-----	47 26 35.91 69 07 21.55	312 30 55 340 19 53	132 30 59 160 19 55	Ref. Mon. C-165-- S-243-----	148.6 145.6	2.17189 2.16319
C-230-----	47 26 35.10 69 07 24.91	250 25 46 292 45 04 313 13 19	70 25 48 112 45 10 133 13 23	C-229----- Ref. Mon. C-165-- S-243-----	74.6 195.0 163.7	1.87280 2.28996 2.21412

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° ' "	° ' "	° ' "			
C-231-----	47 26 28.63 69 07 28.06	198 17 28 244 39 04	18 17 31 64 39 11	C-230----- S-243-----	210.6 205.2	2.32345 2.31208
C-232-----	47 26 31.74 69 07 29.60	223 25 52 272 10 56 341 28 48	43 25 56 92 11 04 161 28 49	C-230----- S-243----- C-231-----	143.0 217.8 101.4	2.15526 2.33798 2.00593
Ref. Mon. S-158----	47 26 26.66 69 07 31.26	192 29 24 227 43 31	12 29 25 47 43 33	C-232----- C-231-----	160.8 90.5	2.20636 1.95677
S-245-----	47 26 30.72 69 07 32.75	244 25 49 303 22 02 346 04 39	64 25 51 123 22 05 166 04 40	C-232----- C-231----- Ref. Mon. S-158--	73.0 117.5 129.3	1.86358 2.06986 2.11157
S-246-----	47 26 34.65 69 07 38.18	296 31 54 316 48 19	116 32 01 136 48 24	C-232----- S-245-----	200.9 166.3	2.30300 2.22101
C-233-----	47 26 36.60 69 07 35.44	43 36 50 320 46 44 342 42 26	223 36 48 140 46 49 162 42 29	S-246----- C-232----- S-245-----	83.2 193.6 190.1	1.91989 2.28681 2.27891
S-247-----	47 26 37.86 69 07 45.15	280 51 59 304 11 20	100 52 06 124 11 25	C-233----- S-246-----	207.2 176.7	2.31640 2.24714
C-234-----	47 26 40.22 69 07 44.90	4 07 45 299 28 47 320 43 35	184 07 45 119 28 54 140 43 40	S-247----- C-233----- S-246-----	73.2 227.7 222.5	1.86440 2.35736 2.34737
S-248-----	47 26 39.00 69 07 53.12	257 37 22 281 55 24	77 37 28 101 55 30	C-234----- S-247-----	176.2 170.5	2.24598 2.23173
Ref. Mon. C-166----	47 26 41.39 69 07 52.31	12 50 41 283 04 49 306 01 22	192 50 41 103 04 55 126 01 28	S-248----- C-234----- S-247-----	75.7 159.4 185.5	1.87929 2.20247 2.26823
C-236-----	47 26 41.10 69 08 00.95	267 11 23 291 35 36	87 11 29 111 35 42	Ref. Mon. C-166-- S-248-----	181.2 176.5	2.25809 2.24676
S-249-----	47 26 38.77 69 08 00.51	172 42 18 244 43 55 267 20 01	352 42 18 64 44 01 87 20 07	C-236----- Ref. Mon. C-166-- S-248-----	72.8 189.9 155.0	1.86189 2.27849 2.19047
S-250-----	47 26 39.88 69 08 06.73	252 42 15 284 49 24	72 42 19 104 49 28	C-236----- S-249-----	126.8 134.8	2.10304 2.12959
C-237-----	47 26 41.60 69 08 05.62	23 34 47 278 53 20 309 13 49	203 34 46 98 53 23 129 13 52	S-250----- C-236----- S-249-----	57.8 99.1 138.3	1.76217 1.99607 2.14091
S-251-----	47 26 43.47 69 08 11.16	296 23 51 319 57 51	116 23 55 139 57 54	C-237----- S-250-----	129.6 144.5	2.11253 2.15978
C-238-----	47 26 44.86 69 08 10.00	29 33 08 317 37 16 335 55 33	209 33 07 137 37 19 155 55 35	S-251----- C-237----- S-250-----	49.3 136.1 168.2	1.69321 2.13384 2.22573
S-252-----	47 26 44.45 69 08 17.41	265 20 31 283 00 48	85 20 37 103 00 52	C-238----- S-251-----	155.8 134.4	2.19262 2.12847
C-239-----	47 26 45.90 69 08 16.44	24 30 40 283 25 04 304 11 34	204 30 39 103 25 09 124 11 38	S-252----- C-238----- S-251-----	49.3 138.7 133.6	1.69256 2.14192 2.12590
C-240-----	47 26 48.40 69 08 20.94	309 21 25 328 49 53	129 21 29 148 49 56	C-239----- S-252-----	122.0 142.8	2.08653 2.15486

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
S-253-----	47 26 46.97 69 08 24.95	242 10 31 280 31 34 296 17 09	62 10 34 100 31 41 116 17 15	C-240----- C-239----- S-252-----	94.9 181.3 176.0	1.97704 2.25841 2.24556
Ref. Mon. C-167----	47 26 50.15 69 08 22.32	29 14 49 331 44 12	209 14 47 151 44 13	S-253----- C-240-----	112.4 61.1	2.05095 1.78624
C-242-----	47 26 47.72 69 08 26.81	231 24 17 260 13 04 300 33 35	51 24 20 80 13 09 120 33 37	Ref. Mon. C-167-- C-240----- S-253-----	120.3 124.8 45.4	2.08024 2.09614 1.65689
C-243-----	47 26 44.47 69 08 28.20	196 07 01 221 23 18	16 07 02 41 23 21	C-242----- S-253-----	104.4 102.9	2.01875 2.01261
S-254-----	47 26 44.20 69 08 25.45	98 12 23 165 18 38 187 04 23	278 12 21 345 18 37 7 04 24	C-243----- C-242----- S-253-----	58.0 112.3 86.2	1.76379 2.05024 1.93539
C-244-----	47 26 40.23 69 08 28.46	182 25 54 207 11 37	2 25 54 27 11 39	C-243----- S-254-----	131.0 137.9	2.11743 2.13952
S-255-----	47 26 39.48 69 08 24.59	105 52 11 153 50 29 172 53 01	285 52 08 333 50 26 352 53 00	C-244----- C-243----- S-254-----	84.4 171.6 146.9	1.92648 2.23450 2.16691
S-256-----	47 26 37.98 69 08 25.60	139 10 11 204 37 38	319 10 09 24 37 39	C-244----- S-255-----	91.7 51.0	1.96251 1.70720
Ref. Mon. S-159----	47 26 38.34 69 08 30.70	218 48 40 254 37 42 275 55 55	38 48 42 74 37 47 95 55 59	C-244----- S-255----- S-256-----	74.8 132.9 107.4	1.87403 2.12338 2.03119
S-258-----	47 26 41.65 69 08 34.56	288 57 46 321 40 26	108 57 51 141 40 29	C-244----- Ref. Mon. S-159--	135.0 130.2	2.13027 2.11471
C-245-----	47 26 42.68 69 08 32.00	59 14 10 315 37 50 348 31 44	239 14 08 135 37 53 168 31 45	S-258----- C-244----- Ref. Mon. S-159--	62.3 106.0 136.8	1.79469 2.02514 2.13602
S-259-----	47 26 47.02 69 08 37.10	321 22 10 342 08 12	141 22 14 162 08 14	C-245----- S-258-----	171.3 174.1	2.23388 2.24088
C-246-----	47 26 47.99 69 08 34.59	60 18 46 341 38 32 359 45 44	240 18 44 161 38 34 179 45 44	S-259----- C-245----- S-258-----	60.5 172.6 195.7	1.78210 2.23711 2.29165
C-247-----	47 26 52.44 69 08 40.61	317 28 27 336 18 44	137 28 32 156 18 47	C-246----- S-259-----	186.5 182.8	2.27066 2.26205
S-260-----	47 26 50.80 69 08 43.31	228 08 23 295 26 52 311 58 01	48 08 25 115 26 59 131 58 06	C-247----- C-246----- S-259-----	75.8 202.1 174.7	1.87971 2.30562 2.24236
S-261-----	47 26 54.41 69 08 47.82	291 57 25 319 40 36	111 57 30 139 40 39	C-247----- S-260-----	162.9 146.3	2.21197 2.16511
Ref. Mon. C-168----	47 26 55.94 69 08 45.64	44 03 55 315 46 18 342 53 37	224 03 54 135 46 22 162 53 39	S-261----- C-247----- S-260-----	65.8 151.0 166.1	1.81830 2.17899 2.22048
S-262-----	47 26 56.08 69 08 52.79	271 40 43 296 25 21	91 40 48 116 25 25	Ref. Mon. C-168-- S-261-----	149.8 116.1	2.17562 2.06496
C-249-----	47 26 58.38 69 08 52.08	11 54 14 299 09 25 323 58 56	191 54 13 119 09 29 143 58 59	S-262----- Ref. Mon. C-168-- S-261-----	72.4 154.4 151.5	1.85970 2.18866 2.18033



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° / "	° / "	° / "			
C-250-----	47 26 56.48 69 08 57.64	243 16 01 276 49 11	63 16 05 96 49 14	C-249----- S-262-----	130.5 102.3	2.11550 2.00993
Ref. Mon. S-160----	47 26 54.61 69 08 57.57	178 39 16 224 41 12 245 32 26	358 39 16 44 41 16 65 32 29	C-250----- C-249----- S-262-----	57.8 163.8 110.1	1.76161 2.21422 2.04185
S-264-----	47 26 54.70 69 09 03.09	244 19 30 271 24 29	64 19 34 91 24 33	C-250----- Ref. Mon. S-160--	126.7 115.6	2.10283 2.06295
C-251-----	47 26 56.39 69 09 02.48	13 49 37 268 29 22 298 11 57	193 49 37 88 29 26 118 12 01	S-264----- C-250----- Ref. Mon. S-160--	53.8 101.4 116.5	1.73068 2.00598 2.06647
C-252-----	47 26 58.09 69 09 07.40	296 56 53 319 13 20	116 56 56 139 13 23	C-251----- S-264-----	115.7 138.2	2.06325 2.14051
S-265-----	47 26 56.48 69 09 08.96	213 27 41 271 11 05 294 05 55	33 27 42 91 11 09 114 05 59	C-252----- C-251----- S-264-----	59.5 135.9 134.8	1.77428 2.13333 2.12969
S-266-----	47 26 59.91 69 09 13.06	295 23 13 320 59 21	115 23 18 140 59 25	C-252----- S-265-----	131.2 136.3	2.11803 2.13435
C-253-----	47 27 01.21 69 09 11.13	45 14 29 320 57 16 342 44 17	225 14 27 140 57 19 162 44 19	S-266----- C-252----- S-265-----	56.9 124.0 152.8	1.75523 2.09358 2.18422
C-254-----	47 27 03.46 69 09 17.52	297 30 46 319 35 32	117 30 51 139 35 35	C-253----- S-266-----	151.0 144.2	2.17892 2.15904
S-267-----	47 27 01.58 69 09 18.90	206 25 43 274 04 01 292 52 47	26 25 44 94 04 07 112 52 51	C-254----- C-253----- S-266-----	65.0 163.2 132.9	1.81262 2.21279 2.12338
S-268-----	47 27 04.33 69 09 24.36	280 35 40 306 35 41	100 35 45 126 35 45	C-254----- S-267-----	145.8 142.6	2.16390 2.15397
Ref. Mon. C-169----	47 27 06.14 69 09 22.90	28 36 28 306 15 21 329 13 18	208 36 27 126 15 25 149 13 21	S-268----- C-254----- S-267-----	63.7 139.9 164.0	1.80431 2.14595 2.21493
S-269-----	47 27 05.23 69 09 27.56	253 53 12 292 29 53	73 53 16 112 29 55	Ref. Mon. C-169-- S-268-----	101.5 72.6	2.00663 1.86070
C-256-----	47 27 07.12 69 09 27.15	8 27 46 288 42 10 325 50 45	188 27 45 108 42 13 145 50 47	S-269----- Ref. Mon. C-169-- S-268-----	58.9 93.8 104.0	1.77020 1.97237 2.01689
C-257-----	47 27 06.28 69 09 29.64	243 34 37 306 42 12	63 34 39 126 42 13	C-256----- S-269-----	58.2 54.2	1.76479 1.73380
C-258-----	47 27 03.68 69 09 30.59	194 01 35 233 00 17	14 01 36 53 00 19	C-257----- S-269-----	82.7 79.5	1.91731 1.90019
S-270-----	47 27 02.94 69 09 28.30	115 32 07 164 51 31 192 23 28	295 32 06 344 51 31 12 23 29	C-258----- C-257----- S-269-----	53.1 106.8 72.4	1.72527 2.02859 1.85977
C-259-----	47 26 59.34 69 09 32.53	196 52 53 218 34 02	16 52 55 38 34 05	C-258----- S-270-----	140.1 142.1	2.14630 2.15267
S-271-----	47 26 58.45 69 09 29.63	114 16 44 172 51 40 191 18 19	294 16 42 352 51 40 11 18 20	C-259----- C-258----- S-270-----	66.8 162.8 141.3	1.82483 2.21153 2.15025
C-260-----	47 26 55.88 69 09 36.22	215 51 24 240 07 11	35 51 27 60 07 16	C-259----- S-271-----	131.8 159.3	2.11989 2.20213

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
Ref. Mon. S-161-----	47 26 53.94 69 09 33.97	141 56 00 190 14 32 213 08 56	321 55 59 10 14 34 33 09 00	C-260----- C-259----- S-271-----	76.3 169.6 166.5	1.88252 2.22939 2.22146
C-261-----	47 26 53.11 69 09 41.59	232 42 27 260 53 33	52 42 31 80 53 38	C-260----- Ref. Mon. S-161--	141.3 161.5	2.15027 2.20824
S-273-----	47 26 50.56 69 09 40.38	162 11 23 207 55 10 232 07 31	342 11 23 27 55 14 52 07 36	C-261----- C-260----- Ref. Mon. S-161--	82.8 186.1 170.0	1.91781 2.26972 2.23041
S-274-----	47 26 50.13 69 09 47.64	233 59 06 264 57 42	53 59 11 84 57 47	C-261----- S-273-----	156.8 152.7	2.19538 2.18397
Nigger Brook east base.	47 26 47.08 69 09 40.22	121 08 52 178 10 42	301 08 47 358 10 42	S-274----- S-273-----	181.8 107.5	2.25954 2.03137
Nigger Brook west base.	47 26 46.09 69 09 49.64	198 35 16 234 33 15 261 09 08	18 35 18 54 33 22 81 09 15	S-274----- S-273----- Nigger Brook east base.	131.6 238.3 199.91	2.11937 2.37708 2.30084
C-262-----	47 26 53.34 69 09 44.76	31 17 57 276 07 05 313 06 50	211 17 55 96 07 08 133 06 53	S-274----- C-261----- S-273-----	116.2 66.8 125.7	2.06537 1.82499 2.09936
Ref. Mon. S-162-----	47 26 59.90 69 09 57.26	307 42 10 326 16 01	127 42 19 146 16 08	C-262----- S-274-----	331.0 362.9	2.51983 2.55973
C-263-----	47 27 01.33 69 09 48.62	76 16 33 341 51 07 356 36 58	256 16 27 161 51 10 176 36 59	Ref. Mon. S-162-- C-262----- S-274-----	186.4 259.6 346.6	2.27034 2.41424 2.53980
S-276-----	47 27 03.02 69 09 58.28	284 27 52 347 27 30	104 27 59 167 27 31	C-263----- Ref. Mon. S-162--	209.1 98.8	2.32039 1.99480
C-264-----	47 27 05.92 69 09 54.44	17 35 36 41 57 36 319 14 17	197 35 34 221 57 33 139 14 21	Ref. Mon. S-162-- S-276----- C-263-----	195.0 120.2 187.0	2.28999 2.08002 2.27185
S-277-----	47 27 05.36 69 10 00.44	262 08 55 327 56 11	82 08 59 147 56 12	C-264----- S-276-----	126.7 85.1	2.10290 1.92979
S-278-----	47 27 06.02 69 10 02.98	271 02 59 291 07 01 313 15 52	91 03 05 111 07 03 133 15 55	C-264----- S-277----- S-276-----	178.9 57.2 135.2	2.25260 1.75705 2.13109
C-265-----	47 27 08.66 69 10 03.38	294 19 38 328 48 50 354 05 58	114 19 45 148 48 53 174 05 59	C-264----- S-277----- S-278-----	205.5 119.2 81.8	2.31287 2.07630 1.91288
Ref. Mon. S-163-----	47 27 08.62 69 10 09.23	269 25 57 301 29 51	89 26 01 121 29 56	C-265----- S-278-----	122.4 153.5	2.08793 2.18599
Ref. Mon. C-170-----	47 27 10.58 69 10 07.31	33 30 14 305 52 33 327 14 08	213 30 13 125 52 36 147 14 12	Ref. Mon. S-163-- C-265----- S-278-----	72.8 101.5 167.5	1.86211 2.00651 2.22410
S-280-----	47 27 10.71 69 10 13.40	271 47 20 306 31 16	91 47 24 126 31 19	Ref. Mon. C-170-- Ref. Mon. S-163--	127.6 108.7	2.10583 2.03620
C-267-----	47 27 13.40 69 10 13.73	302 53 37 327 26 43 355 14 01	122 53 42 147 26 47 175 14 02	Ref. Mon. C-170-- Ref. Mon. S-163-- S-280-----	160.1 175.2 83.3	2.20445 2.24350 1.92046
S-281-----	47 27 11.96 69 10 21.31	254 19 51 283 02 45	74 19 56 103 02 51	C-267----- S-280-----	165.0 170.2	2.21747 2.23090

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued	° / "	° / "	° / "			
C-268-----	47 27 13.88 69 10 21.94	274 56 44 298 41 01 347 35 50	94 56 50 118 41 08 167 35 51	C-267----- S-280----- S-281-----	172.6 203.9 60.9	2.23698 2.30936 1.78434
S-282-----	47 27 13.24 69 10 24.62	250 39 20 299 50 10	70 39 22 119 50 13	C-268----- S-281-----	59.5 79.8	1.77480 1.90218
S-283-----	47 27 15.57 69 10 26.24	300 01 39 334 45 21	120 01 42 154 45 22	C-268----- S-282-----	104.0 79.3	2.01686 1.89939
C-269-----	47 27 17.15 69 10 21.17	9 04 34 30 56 36 65 17 16	189 04 33 210 56 33 245 17 12	C-268----- S-282----- S-283-----	102.1 140.6 116.8	2.00919 2.14796 2.06750
S-284-----	47 27 20.34 69 10 26.40	311 58 29 358 40 15	131 58 33 178 40 15	C-269----- S-283-----	147.3 147.4	2.16831 2.16855
C-270-----	47 27 20.88 69 10 22.88	23 13 00 77 15 35 342 45 57	203 12 58 257 15 33 162 45 59	S-283----- S-284----- C-269-----	178.5 75.7 120.6	2.25168 1.87884 2.08150
C-271-----	47 27 22.25 69 10 26.24	3 07 56 300 59 40	183 07 56 120 59 42	S-284----- C-270-----	59.2 82.3	1.77203 1.91546
C-272-----	47 27 22.12 69 10 31.85	267 59 03 295 41 23	87 59 07 115 41 27	C-271----- S-284-----	117.5 126.7	2.07008 2.10289
S-285-----	47 27 19.41 69 10 34.06	209 00 58 241 50 25 259 54 06	29 01 00 61 50 31 79 54 12	C-272----- C-271----- S-284-----	95.5 185.8 163.1	1.98008 2.26894 2.21236
S-286-----	47 27 23.77 69 10 36.77	296 23 54 337 10 44	116 23 58 157 10 46	C-272----- S-285-----	115.0 146.1	2.06062 2.16461
S-287-----	47 27 22.69 69 10 40.95	249 08 00 275 18 33 305 03 20	69 08 03 95 18 40 125 03 25	S-286----- C-272----- S-285-----	93.8 191.4 176.3	1.97212 2.28204 2.24618
C-273-----	47 27 24.93 69 10 37.53	46 01 22 335 57 10	226 01 20 155 57 10	S-287----- S-286-----	99.6 39.2	1.99827 1.59280
C-274-----	47 27 24.00 69 10 41.30	250 02 54 274 14 30 349 37 16	70 02 57 94 14 33 169 37 16	C-273----- S-286----- S-287-----	84.1 95.3 41.1	1.92497 1.97910 1.61412
S-288-----	47 27 25.88 69 10 45.27	305 00 59 317 28 46	125 01 02 137 28 49	C-274----- S-287-----	101.4 133.8	2.00597 2.12652
S-289-----	47 27 23.84 69 10 48.69	228 38 42 268 10 22 282 21 21	48 38 44 88 10 27 102 21 26	S-288----- C-274----- S-287-----	95.5 154.8 166.0	1.98008 2.18980 2.22007
C-275-----	47 27 27.73 69 10 47.15	15 02 31 325 25 09	195 02 31 145 25 10	S-289----- S-288-----	124.5 69.4	2.09520 1.84131
C-276-----	47 27 24.43 69 10 50.42	213 53 59 247 22 43 296 28 53	33 54 01 67 22 46 116 28 54	C-275----- S-288----- S-289-----	123.1 117.0 40.6	2.09014 2.06829 1.60836
S-290-----	47 27 21.83 69 10 52.42	207 28 48 231 28 09	27 28 49 51 28 11	C-276----- S-289-----	90.5 99.8	1.95655 1.99917
C-277-----	47 27 23.14 69 10 53.07	234 26 19 256 48 58 341 31 05	54 26 21 76 49 01 161 31 06	C-276----- S-289----- S-290-----	68.0 94.2 42.9	1.83280 1.97388 1.63258



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
S-291	47 27 21.50	242 38 17	62 38 20	C-277	110.6	2.04377
	69 10 57.76	264 49 15	84 49 19	S-290	112.3	2.05035
C-278	47 27 22.78	263 28 54	83 28 57	C-277	99.9	1.99957
	69 10 57.81	284 34 53	104 34 57	S-290	116.6	2.06675
		358 30 54	178 30 54	S-291	39.5	1.59668
C-279	47 27 23.43	281 35 46	101 35 49	C-278	99.5	1.99800
	69 11 02.46	301 07 39	121 07 42	S-291	115.1	2.06109
S-292	47 27 21.41	197 31 47	17 31 48	C-279	65.4	1.81558
	69 11 03.40	250 07 53	70 07 57	C-278	124.6	2.09561
		268 36 49	88 36 53	S-291	118.3	2.07286
S-293	47 27 21.97	243 01 28	63 01 31	C-279	98.8	1.99492
	69 11 06.67	284 22 41	104 22 43	S-292	70.6	1.84878
C-280	47 27 23.56	271 51 13	91 51 17	C-279	123.1	2.09023
	69 11 08.33	302 42 13	122 42 16	S-292	122.8	2.08918
		324 24 12	144 24 13	S-293	60.0	1.77840
C-281	47 27 20.89	228 26 33	48 26 36	C-280	124.2	2.09405
	69 11 12.77	255 17 35	75 17 39	S-293	132.2	2.12122
S-294	47 27 18.80	143 02 19	323 02 17	C-281	80.6	1.90622
	69 11 10.46	196 51 31	16 51 32	C-280	153.4	2.18569
		219 02 11	39 02 13	S-293	126.1	2.10070
S-295	47 27 18.61	232 57 23	52 57 26	C-281	116.7	2.06722
	69 11 17.22	267 35 49	87 35 54	S-294	141.8	2.15154
C-282	47 27 19.90	254 05 50	74 05 54	C-281	110.9	2.04504
	69 11 17.86	282 21 28	102 21 34	S-294	158.8	2.20089
		341 19 06	161 19 07	S-295	42.2	1.62484
C-283	47 27 17.48	239 01 24	59 01 28	C-282	145.7	2.16353
	69 11 23.83	255 47 07	75 47 12	S-295	142.8	2.15478
S-296	47 27 16.11	136 36 48	316 36 47	C-283	57.9	1.76244
	69 11 21.93	216 02 43	36 02 46	C-282	144.8	2.16069
		231 59 38	51 59 42	S-295	125.3	2.09778
S-297	47 27 12.58	192 31 39	12 31 40	C-283	154.9	2.19012
	69 11 25.43	213 53 45	33 53 47	S-296	131.5	2.11904
C-284	47 27 16.32	253 07 40	73 07 44	C-283	123.3	2.09086
	69 11 29.46	272 16 42	92 16 47	S-296	157.8	2.19822
		323 50 40	143 50 43	S-297	143.0	2.15532
S-298	47 27 12.54	178 09 47	358 09 47	C-284	116.8	2.06745
	69 11 29.28	269 05 11	89 05 14	S-297	80.6	1.90650
S-299	47 27 15.50	227 32 36	47 32 37	C-284	37.5	1.57397
	69 11 30.78	308 49 22	128 49 26	S-297	143.8	2.15774
		341 02 30	161 02 31	S-298	96.7	1.98532
C-285	47 27 18.91	315 07 04	135 07 07	C-284	113.0	2.05295
	69 11 33.26	333 42 27	153 42 29	S-299	117.5	2.07008
S-300	47 27 17.79	221 57 08	41 57 09	C-285	46.4	1.66693
	69 11 34.75	292 20 00	112 20 04	C-284	119.7	2.07826
		310 26 08	130 26 11	S-299	109.2	2.03814
C-286	47 27 20.65	294 39 25	114 39 29	C-285	129.0	2.11045
	69 11 38.86	315 43 06	135 43 09	S-300	123.4	2.09130

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
S-301-----	47 27 19.29 69 11 39.77	204 34 09 274 59 24 293 48 01	24 34 09 94 59 28 113 48 04	C-286----- C-285----- S-300-----	46.1 136.9 115.1	1.66337 2.13632 2.06105
Ref. Mon. C-173----	47 27 21.08 69 11 45.09	275 44 17 296 16 22	95 44 21 116 16 26	C-286----- S-301-----	131.3 124.3	2.11815 2.09446
S-302-----	47 27 19.55 69 11 45.42	188 08 15 256 04 54 273 48 11	8 08 15 76 04 58 93 48 15	Ref. Mon. C-173-- C-286----- S-301-----	47.6 141.5 118.5	1.67798 2.15078 2.07357
C-288-----	47 27 20.40 69 11 50.17	258 54 41 284 47 57	78 54 45 104 48 01	Ref. Mon. C-173-- S-302-----	108.4 103.0	2.03495 2.01297
S-303-----	47 27 18.99 69 11 49.63	165 18 18 235 49 31 258 54 33	345 18 17 55 49 34 78 54 36	C-288----- Ref. Mon. C-173-- S-302-----	45.1 114.7 89.9	1.65396 2.05968 1.95355
C-289-----	47 27 18.76 69 11 56.43	248 56 21 267 13 42	68 56 25 87 13 47	C-288----- S-303-----	140.5 142.8	2.14782 2.15460
S-304-----	47 27 17.07 69 11 55.05	151 03 39 224 48 06 242 26 31	331 03 38 44 48 09 62 26 35	C-289----- C-288----- S-303-----	59.9 145.0 128.2	1.77720 2.16142 2.10777
S-305-----	47 27 14.73 69 12 00.22	212 28 12 236 17 43	32 28 14 56 17 46	C-289----- S-304-----	147.7 130.1	2.16936 2.11440
Ref. Mon. C-174----	47 27 16.79 69 12 02.14	242 54 32 266 38 33 327 41 50	62 54 36 86 38 38 147 41 52	C-289----- S-304----- S-305-----	134.2 148.7 75.1	2.12763 2.17222 1.87585
C-291-----	47 27 15.41 69 12 05.59	239 37 37 280 36 21	59 37 39 100 36 25	Ref. Mon. C-174-- S-305-----	83.9 114.5	1.92386 2.05885
S-306-----	47 27 12.81 69 12 04.29	161 17 20 200 11 44 235 11 57	341 17 19 20 11 45 55 12 00	C-291----- Ref. Mon. C-174-- S-305-----	84.9 130.9 103.9	1.92875 2.11681 2.01668
C-292-----	47 27 09.82 69 12 16.04	231 41 27 249 24 07	51 41 35 69 24 16	C-291----- S-306-----	278.8 262.8	2.44533 2.41965
S-307-----	47 27 06.84 69 12 13.47	149 39 05 211 56 41 226 12 48	329 39 03 31 56 47 46 12 55	C-292----- C-291----- S-306-----	106.4 311.9 266.3	2.02695 2.49402 2.42539
C-293-----	47 27 07.87 69 12 19.64	231 27 15 283 47 08	51 27 17 103 47 12	C-292----- S-307-----	96.5 133.0	1.98441 2.12401
Ref. Mon. S-166----	47 27 06.41 69 12 19.58	178 35 38 215 13 49 264 00 21	358 35 38 35 13 51 84 00 25	C-293----- C-292----- S-307-----	45.2 128.9 128.8	1.65484 2.11017 2.10995
S-309-----	47 27 07.57 69 12 22.53	261 17 59 300 11 38	81 18 01 120 11 40	C-293----- Ref. Mon. S-166--	61.3 71.4	1.78726 1.85343
S-310-----	47 27 12.58 69 12 21.16	10 31 57 347 39 23	190 31 56 167 39 24	S-309----- C-293-----	157.3 148.8	2.19672 2.17266
C-294-----	47 27 12.01 69 12 18.56	10 00 50 31 13 47 107 51 20	190 00 49 211 13 44 287 51 18	C-293----- S-309----- S-310-----	129.8 160.4 57.1	2.11339 2.20510 1.75695
C-295-----	47 27 14.58 69 12 19.90	22 55 02 340 27 54	202 55 01 160 27 55	S-310----- C-294-----	67.3 84.3	1.82776 1.92596

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—continued						
	° ' "	° ' "	° ' "			
S-311-----	47 27 14.46 69 12 25.95	268 14 33 300 01 52	88 14 37 120 01 55	C-295----- S-310-----	126.7 116.0	2.10277 2.06455
C-296-----	47 27 16.01 69 12 25.50	11 08 32 290 39 21 319 23 35	191 08 32 110 39 25 139 23 38	S-311----- C-295----- S-310-----	49.0 125.2 139.8	1.69004 2.09768 2.14547
C-297-----	47 27 19.81 69 12 32.93	307 00 29 318 31 35	127 00 34 138 31 40	C-296----- S-311-----	194.9 220.7	2.28982 2.34384
S-312-----	47 27 17.03 69 12 37.25	226 30 34 277 17 55 288 35 17	46 30 37 97 18 03 108 35 25	C-297----- C-296----- S-311-----	124.7 248.1 249.6	2.09573 2.39461 2.39732
Ref. Mon. C-175----	47 27 25.32 69 12 42.98	308 56 04 334 51 43	128 56 11 154 51 47	C-297----- S-312-----	270.6 282.6	2.43235 2.45122
S-313-----	47 27 17.69 69 12 44.89	189 38 13 255 21 32 277 14 59	9 38 14 75 21 40 97 15 04	Ref. Mon. C-175-- C-297----- S-312-----	238.9 258.9 161.3	2.37816 2.41312 2.20774
Ref. Mon. S-167----	47 27 21.60 69 13 03.45	255 00 33 287 14 06	75 00 48 107 14 20	Ref. Mon. C-175-- S-313-----	444.0 407.2	2.64739 2.60982
C-299-----	47 27 33.56 69 12 59.35	13 05 14 135 30 41 306 34 59 328 16 12	193 05 11 315 30 27 126 35 11 148 16 23	Ref. Mon. S-167-- Ref. Mon. C-176-- Ref. Mon. C-175-- S-313-----	379.3 582.0 427.2 576.2	2.57896 2.76490 2.63060 2.76058
S-315 (Boundary Lake east base).	47 27 23.35 69 13 17.26	177 26 15 229 56 23 280 34 04	357 26 14 49 56 36 100 34 14	Ref. Mon. C-176-- C-299----- Ref. Mon. S-167--	731.3 490.2 294.3	2.86412 2.69034 2.46877
C-300-----	47 27 40.87 69 13 15.78	3 17 21 161 24 14 303 14 56 336 32 30	183 17 20 341 24 12 123 15 08 156 32 39	S-315----- Ref. Mon. C-176-- C-299----- Ref. Mon. S-167--	541.9 200.0 411.4 648.6	2.73394 2.30108 2.61428 2.81198
S-316 (Boundary Lake west base).	47 27 30.06 69 13 30.73	205 28 09 223 09 47 260 38 24 306 17 41	25 28 18 43 09 58 80 38 47 126 17 51	Ref. Mon. C-176-- C-300----- C-299----- S-315-----	579.8 457.7 666.1 349.96	2.76328 2.66061 2.82352 2.54402
Mon. 178-----	47 27 34.80 69 13 31.39	214 54 43 240 10 42 273 15 26 320 05 26 354 38 21	34 54 52 60 10 53 93 15 49 140 05 36 174 38 21	Ref. Mon. C-176-- C-300----- C-299----- S-315----- S-316-----	459.7 376.8 672.0 461.1 147.2	2.66244 2.57607 2.82739 2.66376 2.16777
Mon. 181-----	47 27 13.78 69 13 53.02	214 54 27 222 52 37 241 27 58 248 27 27	34 54 52 42 52 53 61 28 37 68 27 53	Ref. Mon. C-176-- S-316----- C-299----- S-315-----	1,251.4 686.1 1,279.4 805.2	3.09740 2.83638 3.10702 2.90588
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS						
Mon. 117-----	47 03 57.98 67 47 27.12					
Ref. Mon. C-1-----	47 04 05.58 67 47 20.43	31 02 09 99 59 36	211 02 04 279 59 10	Mon. 117----- Ref. Mon. S-2----	273.9 772.9	2.43764 2.88813



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—CON.	° ' "	° ' "	° ' "			
Ref. Mon. S-1-----	47 04 00.26 67 47 32.02	236 04 21 304 14 00	56 04 30 124 14 04	Ref. Mon. C-1----- Mon. 117-----	294.6 124.9	2.46929 2.09655
Ref. Mon. C-2-----	47 04 18.19 67 47 52.33	19 02 48 87 38 48	199 02 45 267 38 27	Ref. Mon. S-2----- Ref. Mon. S-3-----	270.0 607.4	2.43138 2.78346
Ref. Mon. C-4-----	47 04 38.10 67 48 38.15	39 34 48 106 50 02	219 34 42 286 49 47	Ref. Mon. S-4----- Ref. Mon. S-5-----	270.8 446.7	2.43262 2.65003
Ref. Mon. C-5-----	47 04 54.33 67 48 55.30	10 02 09 81 20 15 102 57 49	190 02 07 261 19 56 282 56 31	Ref. Mon. S-5----- Ref. Mon. S-6----- Ref. Mon. S-7-----	377.6 538.7 1,061.5	2.57708 2.73136 3.02593
Ref. Mon. C-6-----	47 05 08.82 67 49 27.16	59 58 06 345 13 38	239 57 53 165 13 43	Ref. Mon. S-7----- Ref. Mon. S-6-----	418.8 546.8	2.62200 2.73781
Ref. Mon. C-7-----	47 05 18.75 67 50 15.41	199 33 44	19 33 46	C-7-----	150.32	2.17702
Ref. Mon. C-8-----	47 05 39.03 67 50 46.05	53 30 38 99 50 20 341 45 39	233 29 16 279 48 35 161 44 49	Ref. Mon. S-9----- Ref. Mon. S-10----- Ref. Mon. S-8-----	786.4 1,440.5 956.7	2.89565 3.15851 2.98079
Ref. Mon. 119-----	47 05 34.68 67 51 04.96	34 58 26 251 24 33	214 58 18 71 24 47	Ref. Mon. S-9----- Ref. Mon. C-8-----	407.0 420.9	2.60963 2.62415
Ref. Mon. C-9-----	47 06 01.94 67 51 45.68	19 17 55 331 58 17	199 17 49 151 58 39	Ref. Mon. S-10----- Ref. Mon. S-9-----	489.4 1,331.4	2.68964 3.12432
Ref. Mon. C-10-----	47 06 05.16 67 52 03.96	48 53 34 321 34 15	228 53 24 141 34 50	Ref. Mon. S-11----- Ref. Mon. S-9-----	397.8 1,627.2	2.59966 3.21144
Ref. Mon. C-12-----	47 06 19.58 67 52 55.60	5 42 28 48 08 28	185 42 26 228 08 16	Ref. Mon. S-12----- Ref. Mon. S-13-----	501.8 442.5	2.70052 2.64593
Ref. Mon. C-13-----	47 06 30.62 67 53 06.49	103 03 55 347 55 51	283 03 40 167 55 57	Ref. Mon. S-15----- Ref. Mon. S-12-----	429.2 859.1	2.63270 2.93403
Ref. Mon. C-14-----	47 06 37.73 67 53 13.68	65 17 16 150 43 46	245 17 07 330 43 34	Ref. Mon. S-15----- Ref. Mon. S-16-----	293.3 711.6	2.46725 2.85223
Ref. Mon. C-15-----	47 06 54.77 67 53 15.68	107 11 48 145 25 17	287 11 37 325 24 59	Ref. Mon. S-16----- Ref. Mon. S-17-----	320.0 922.8	2.50511 2.96510
Ref. Mon. C-16-----	47 07 22.18 67 53 17.69	19 18 20 79 47 08 136 01 32	199 18 11 259 46 51 316 01 03	Ref. Mon. S-16----- Ref. Mon. S-17----- Ref. Mon. S-18-----	796.7 489.2 1,207.3	2.90131 2.68949 3.08183
Ref. Mon. 120-----	47 07 31.93 67 53 31.78	25 26 07 136 22 04	205 26 01 316 21 45	Ref. Mon. S-17----- Ref. Mon. S-18-----	429.4 784.5	2.63288 2.89459
Ref. Mon. C-18-----	47 08 14.95 67 54 00.04	45 48 35 127 29 01	225 48 24 307 28 38	Ref. Mon. S-19----- Ref. Mon. S-20-----	446.6 841.6	2.64991 2.92511
Ref. Mon. C-19-----	47 08 31.47 67 54 14.34	90 18 30 126 46 07	270 18 17 306 45 38	Ref. Mon. S-20----- Ref. Mon. S-21-----	366.4 1,039.1	2.56396 3.01667
Ref. Mon. C-20-----	47 09 00.12 67 54 40.96	45 57 08 347 34 41	225 56 58 167 34 48	Ref. Mon. S-21----- Ref. Mon. S-20-----	377.9 903.9	2.57740 2.95612
Ref. Mon. C-21-----	47 09 23.09 67 55 22.82	37 09 10 89 05 42 120 24 46	217 08 59 269 05 19 300 24 30	Ref. Mon. S-22----- Ref. Mon. S-23----- Ref. Mon. C-22-----	522.6 665.0 542.4	2.71821 2.82282 2.73435

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—CON.						
	° ' "	° ' "	° ' "			
Ref. Mon. C-23-----	47 09 52.96 67 55 59.14	60 20 13 353 51 39	240 19 59 173 51 43	Ref. Mon. S-24--- Ref. Mon. S-23---	475.4 938.3	2.67710 2.97235
Van Buren highway bridge Boundary Point.	47 09 35.37 67 55 53.39	3 04 07 300 41 34	183 04 06 120 41 40	Ref. Mon. S-23--- Ref. Mon. C-22---	390.2 204.9	2.59134 2.31151
Ref. Mon. S-25-----	47 10 01.60 67 56 25.34	295 48 14 344 33 28	115 48 33 164 33 33	Ref. Mon. C-23--- Ref. Mon. S-24---	612.9 521.0	2.78742 2.71680
Ref. Mon. C-24-----	47 10 17.24 67 56 16.71	69 07 02 149 36 09	249 06 51 329 35 52	Ref. Mon. S-26--- Ref. Mon. C-26---	348.0 943.3	2.54160 2.97466
Ref. Mon. C-25-----	47 10 37.94 67 56 33.93	118 36 14 146 36 50	298 35 48 326 36 46	Ref. Mon. S-29--- Ref. Mon. C-26---	838.2 208.5	2.92335 2.31916
Keegan railroad bridge Boundary Point.	47 10 30.16 67 56 34.63	131 39 04 166 24 52 183 28 53	311 38 39 346 24 54 3 28 54	Ref. Mon. S-29--- Ref. Mon. C-26--- Ref. Mon. C-25---	965.3 426.3 240.7	2.98468 2.62974 2.38153
Ref. Mon. C-27-----	47 10 55.89 67 56 51.39	7 05 51 67 25 12 114 20 27	187 06 57 247 24 59 294 20 04	Ref. Mon. S-28--- Ref. Mon. S-29--- Ref. Mon. S-30---	661.7 398.8 712.6	2.82064 2.60079 2.85284
Ref. Mon. C-28-----	47 11 15.13 67 56 57.69	17 29 20 59 48 22	197 29 12 239 48 04	Ref. Mon. S-29--- Ref. Mon. S-30---	783.6 597.5	2.89407 2.77636
Ref. Mon. 123-----	47 12 03.42 67 57 56.43	74 47 25 152 03 19	254 47 02 332 03 09	Ref. Mon. S-32--- Ref. Mon. C-30---	671.0 577.5	2.82673 2.76155
Ref. Mon. S-31 ecc--	47 11 46.12 67 57 41.64	149 46 33 258 43 33	329 46 22 78 43 53	Ref. Mon. 123--- Ref. Mon. C-29---	618.3 602.9	2.79122 2.78026
Ref. Mon. S-31-----	47 11 46.11 67 57 41.72	258 43 53	78 43 53	Ref. Mon. S-31ecc--	1.76	0.2448
Ref. Mon. 122-----	47 11 54.05 67 57 33.58	34 41 32 121 01 43 286 46 58	214 41 26 301 01 26 106 47 12	Ref. Mon. S-31ecc-- Ref. Mon. 123--- Ref. Mon. C-29---	298.0 561.2 440.4	2.47423 2.74908 2.64388
Ref. Mon. 121-----	47 11 42.52 67 57 19.99	141 13 29 210 37 17	321 13 19 30 37 22	Ref. Mon. 122--- Ref. Mon. C-29---	456.9 266.1	2.65980 2.42505
Ref. Mon. C-31-----	47 12 30.65 67 58 40.26	10 37 03 108 45 00	190 36 59 288 44 43	Ref. Mon. S-33--- Ref. Mon. C-32---	631.8 521.0	2.80055 2.71697
Ref. Mon. S-34-----	47 12 23.09 67 59 18.25	122 52 02 217 20 58	302 51 50 37 21 09	Ref. Mon. S-35--- Ref. Mon. C-32---	424.0 504.4	2.62737 2.70274
Ref. Mon. C-34-----	47 13 06.17 67 59 52.08	37 27 37 342 04 32	217 27 26 162 04 44	Ref. Mon. S-36--- Ref. Mon. S-35---	522.7 1,156.5	2.71827 3.06315
Ref. Mon. 124-----	47 12 58.41 67 59 59.17	43 56 12 329 35 35	223 56 06 149 35 53	Ref. Mon. S-36--- Ref. Mon. S-35---	243.3 997.9	2.38611 2.99908
Ref. Mon. C-35-----	47 13 32.80 68 00 14.93	205 54 00	25 54 00	C-35-----	28.19	1.45086
Ref. Mon. 126-----	47 13 31.67 68 00 30.07	263 44 30 353 42 21	83 44 41 173 42 23	Ref. Mon. C-35--- Ref. Mon. S-37---	320.5 509.4	2.50586 2.70702
Ref. Mon. C-36-----	47 14 07.41 68 00 54.95	76 34 49 137 35 12	256 34 29 317 34 37	Ref. Mon. S-38--- Ref. Mon. C-37---	598.6 1,497.5	2.77713 3.17536

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—CON.	° ' "	° ' "	° ' "			
Ref. Mon. C-38-----	47 15 05.79 68 02 35.13	61 35 34 101 03 37	241 35 13 281 02 49	Ref. Mon. S-40--- Ref. Mon. S-41---	670. 5 1, 387. 9	2. 82641 3. 14235
Ref. Mon. 128-----	47 15 14. 83 68 03 14. 22	88 37 33 338 47 11	268 37 14 158 47 19	Ref. Mon. S-41--- Ref. Mon. S-40---	540. 4 641. 6	2. 73270 2. 80724
Ref. Mon. C-40-----	47 15 57. 50 68 04 36. 53	38 25 15 116 24 58	218 24 49 296 23 23	Ref. Mon. S-42--- Ref. Mon. S-43---	1, 217. 9 3, 039. 1	3. 08560 3. 48275
Ref. Mon. 130-----	47 15 58. 58 68 05 02. 76	11 44 44 121 16 33	191 44 37 301 15 17	Ref. Mon. S-42--- Ref. Mon. S-43---	1, 008. 7 2, 539. 6	3. 00376 3. 40476
Ref. Mon. C-42-----	47 17 20. 21 68 07 10. 65	44 03 26 108 12 53	224 03 07 288 11 43	Ref. Mon. S-44--- Ref. Mon. S-45---	789. 1 2, 103. 1	2. 89713 3. 32287
Ref. Mon. 134-----	47 17 27. 69 68 07 40. 01	107 09 48 355 06 38	287 09 00 175 06 40	Ref. Mon. S-45--- Ref. Mon. S-44---	1, 445. 3 800. 8	3. 15996 2. 90350
Ref. Mon. C-46-----	47 19 49. 01 68 10 35. 60	52 39 10 117 19 59	232 38 56 297 19 50	Ref. Mon. S-49--- Ref. Mon. C-47---	514. 4 276. 4	2. 71130 2. 44159
Ref. Mon. 134-A-----	47 21 11. 70 68 15 27. 44	59 21 17 181 08 06	239 20 41 1 08 06	Ref. Mon. S-54--- Ref. Mon. C-52---	1, 187. 6 632. 3	3. 07467 2. 80093
Ref. Mon. C-51-----	47 21 37. 45 68 14 33. 57	26 28 07 56 57 05	206 27 48 236 55 50	Ref. Mon. S-53--- Ref. Mon. S-54---	1, 211. 0 2, 568. 1	3. 08316 3. 40961
Ref. Mon. C-56-----	47 21 42. 67 68 19 44. 45	351 49 13	171 49 13	C-56-----	14. 98	1. 17554
Ref. Mon. 136-----	47 21 24. 01 68 18 20. 67	3 28 28 226 52 43	183 28 27 46 52 54	Ref. Mon. S-56--- Ref. Mon. C-54---	577. 3 428. 3	2. 76139 2. 63170
Ref. Mon. 138-----	47 21 28. 76 68 18 11. 52	17 27 06 313 13 36	197 26 58 133 14 12	Ref. Mon. S-56--- Ref. Mon. S-55---	757. 6 1, 414. 8	2. 87945 3. 15069
Ref. Mon. C-57-----	47 21 39. 55 68 21 01. 09	13 07 13 336 23 36	193 07 06 156 23 48	Ref. Mon. S-60--- Ref. Mon. S-59---	866. 9 833. 6	2. 93797 2. 92096
Ref. Mon. C-58-----	47 21 30. 14 68 21 15. 38	45 55 54 306 44 49 349 27 27	225 55 17 126 45 10 169 27 31	Ref. Mon. S-61--- Ref. Mon. S-59--- Ref. Mon. S-60---	1, 461. 9 790. 8 563. 0	3. 16493 2. 89805 2. 75054
Ref. Mon. 139-----	47 17 08. 45 68 22 51. 85	43 40 31 306 39 25	223 39 57 126 39 41	Ref. Mon. S-70--- Ref. Mon. S-69---	1, 398. 7 582. 5	3. 14573 2. 76527
Ref. Mon. 140-----	47 17 06. 15 68 23 40. 19	280 33 22 356 57 31	100 34 14 176 57 33	Ref. Mon. S-69--- Ref. Mon. S-70---	1, 508. 6 941. 8	3. 17856 2. 97398
Ref. Mon. 142-----	47 17 02. 45 68 23 53. 68	177 26 43 275 14 31 338 01 23	357 26 41 95 15 33 158 01 35	Ref. Mon. C-66--- Ref. Mon. S-69--- Ref. Mon. S-70---	1, 355. 0 1, 773. 9 891. 0	3. 13193 3. 24893 2. 94989
Ref. Mon. 141-----	47 17 09. 20 68 23 48. 18	28 57 51 348 06 09	208 57 47 168 06 17	Ref. Mon. 142--- Ref. Mon. S-70---	238. 3 1, 057. 5	2. 37715 3. 02428
Ref. Mon. 144-----	47 17 10. 99 68 27 32. 41	3 11 12 296 24 41	183 11 11 116 25 47	Ref. Mon. S-73--- Ref. Mon. S-72---	337. 4 2, 114. 8	2. 52809 3. 32527
Ref. Mon. 143-----	47 17 07. 84 68 27 16. 19	56 19 32 105 55 49	236 19 19 285 55 37	Ref. Mon. S-73--- Ref. Mon. 144---	432. 2 354. 5	2. 63564 2. 54959
Ref. Mon. 145-----	47 17 53. 33 68 28 51. 66	30 06 58 71 27 07	210 06 42 251 26 13	Ref. Mon. S-75--- Ref. Mon. S-76---	910. 6 1, 613. 6	2. 95933 3. 20780



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—CON.	° ' "	° ' "	° ' "			
Ref. Mon. 146-----	47 18 07.11 68 29 26.37	40 27 00 221 09 15 347 20 49	220 26 32 41 09 27 167 20 59	Ref. Mon. S-76--- Ref. Mon. C-71--- Ref. Mon. S-75---	1, 233. 9 508. 1 1, 243. 4	3. 09128 2. 70598 3. 09462
Ref. Mon. 147-----	47 17 46.17 68 29 02.41	22 11 17 77 22 11	202 11 09 257 21 25	Ref. Mon. S-75--- Ref. Mon. S-76---	611. 8 1, 336. 3	2. 78664 3. 12590
Ref. Mon. 149-----	47 17 51.98 68 29 59.68	12 02 53 307 29 33	192 02 49 127 30 07	Ref. Mon. S-76--- Ref. Mon. S-75---	482. 3 1, 225. 4	2. 68335 3. 08827
Ref. Mon. 151-----	47 17 56.98 68 30 18.50	28 13 31 334 47 46	208 13 21 154 47 56	Ref. Mon. S-77--- Ref. Mon. S-76---	602. 8 692. 3	2. 78016 2. 84030
Ref. Mon. 151-A----	47 17 51.20 68 30 20.36	34 54 22 323 18 22	214 54 14 143 18 34	Ref. Mon. S-77--- Ref. Mon. S-76---	430. 0 558. 7	2. 63350 2. 74714
Ref. Mon. 153-----	47 17 52.01 68 30 32.20	309 03 19 359 34 20	129 03 39 179 34 20	Ref. Mon. S-76--- Ref. Mon. S-77---	750. 4 377. 6	2. 87529 2. 57698
Ref. Mon. S-90-----	47 14 41.01 68 36 18.14	80 24 43	260 24 41	S-90-----	45. 80	1. 66086
Ref. Mon. 154-----	47 14 16.43 68 39 38.19	55 52 52 298 42 21	235 52 14 118 42 32	Ref. Mon. S-96--- Ref. Mon. S-95---	1, 321. 9 358. 1	3. 12120 2. 55402
Ref. Mon. 155-----	47 14 23.37 68 40 00.00	33 37 41 296 33 00	213 37 19 116 33 27	Ref. Mon. S-96--- Ref. Mon. S-95---	1, 147. 8 863. 9	3. 05986 2. 93645
Ref. Mon. 156-----	47 14 32.38 68 43 00.23	288 17 16 339 38 31	108 18 04 159 38 36	Ref. Mon. S-97--- Ref. Mon. S-98---	1, 445. 5 406. 5	3. 16003 2. 60903
Ref. Mon. 157-----	47 14 42.27 68 43 23.27	177 01 35 317 38 47	357 01 34 137 39 09	Ref. Mon. C-92--- Ref. Mon. S-98---	459. 4 928. 9	2. 66217 2. 96798
Ref. Mon. 158-----	47 14 27.41 68 43 24.62	94 00 13 180 17 06	273 59 06 0 17 06	Ref. Mon. C-94--- Ref. Mon. C-92---	1, 916. 9 917. 6	3. 28261 2. 96266
Ref. Mon. 159-----	47 14 29.44 68 43 47.01	184 52 29 209 05 20	4 52 31 29 05 36	Ref. Mon. C-93--- Ref. Mon. C-92---	689. 1 978. 2	2. 83826 2. 99041
Ref. Mon. 159-A----	47 14 18.97 68 43 33.27	102 51 03 167 09 14 267 43 13	282 50 04 347 09 06 87 43 42	Ref. Mon. C-94--- Ref. Mon. C-93--- Ref. Mon. S-98---	1, 774. 6 1, 036. 2 837. 0	3. 24910 3. 01546 2. 92271
Ref. Mon. 159-B----	47 14 16.64 68 43 31.67	104 49 12 166 16 49	284 48 11 346 16 40	Ref. Mon. C-94--- Ref. Mon. C-93---	1, 824. 7 1, 114. 1	3. 26119 3. 04693
Ref. Mon. 160-----	47 14 14.30 68 44 06.66	117 39 32 202 13 25	297 38 56 22 13 41	Ref. Mon. C-94--- Ref. Mon. C-93---	1, 160. 6 1, 247. 2	3. 06468 3. 09593
Ref. Mon. 161-----	47 14 04.95 68 44 31.42	148 29 26 214 30 52	328 29 08 34 31 27	Ref. Mon. C-94--- Ref. Mon. C-93---	970. 4 1, 751. 5	2. 98696 3. 24342
Ref. Mon. 162-----	47 13 58.88 68 44 14.79	139 48 55 210 30 07	319 48 25 30 30 44	Ref. Mon. C-94--- Ref. Mon. C-92---	1, 328. 2 2, 087. 7	3. 12327 3. 31967
Ref. Mon. 163-----	47 13 45.50 68 44 35.08	163 13 55 207 37 07	343 13 40 27 37 44	Ref. Mon. C-94--- Ref. Mon. C-93---	1, 491. 4 2, 306. 7	3. 17358 3. 36299
Ref. Mon. 163-A----	47 13 23.51 68 46 45.96	51 55 31 285 44 16	231 54 37 105 44 53	Ref. Mon. S-104-- Ref. Mon. S-102--	1, 976. 1 1, 109. 2	3. 29580 3. 04500
Ref. Mon. 164-----	47 12 55.01 68 48 00.88	135 28 50 356 27 15	315 28 38 176 27 16	Ref. Mon. C-98--- Ref. Mon. S-104--	496. 7 339. 4	2. 69608 2. 53070

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—CON.	° ' "	° ' "	° ' "			
Ref. Mon. 165-----	47 12 43.79 68 48 18.05	181 03 39 268 49 52	1 03 39 88 50 05	Ref. Mon. C-98--- Ref. Mon. S-104--	700.8 382.3	2.84558 2.58245
Ref. Mon. 166-----	47 12 51.37 68 48 32.71	214 34 38 288 08 21	34 34 49 108 08 45	Ref. Mon. C-98--- Ref. Mon. S-104--	566.6 727.0	2.75326 2.86153
Ref. Mon. 167-----	47 12 49.65 68 48 45.99	229 08 18 280 06 13	49 08 39 100 06 47	Ref. Mon. C-98--- Ref. Mon. S-104--	794.7 985.6	2.90019 2.99372
Ref. Mon. 168-----	47 12 36.27 68 48 43.59	210 32 32 255 22 15	30 32 51 75 22 47	Ref. Mon. C-98--- Ref. Mon. S-104--	1,083.2 950.6	3.03471 2.97801
Ref. Mon. 169-----	47 12 16.94 68 49 39.50	21 14 05 120 38 00	201 13 58 300 37 44	Ref. Mon. S-106-- Ref. Mon. C-100--	529.1 534.2	2.72354 2.72774
Ref. Mon. 170-----	47 11 08.66 68 52 52.50	190 35 20 235 03 16	10 35 22 55 03 55	Ref. Mon. C-105-- Ref. Mon. C-104--	298.4 1,380.0	2.47473 3.13989
Ref. Mon. 171-----	47 10 53.58 68 53 15.85	15 27 07 148 09 45	195 26 52 328 09 41	Ref. Mon. S-113-- Ref. Mon. C-106--	1,602.2 221.1	3.20472 2.34465
Ref. Mon. 172-----	47 10 43.82 68 53 27.99	7 50 18 195 51 59 288 32 03	187 50 13 15 52 04 108 32 33	Ref. Mon. S-113-- Ref. Mon. C-106-- Ref. Mon. S-112--	1,254.7 508.5 896.3	3.09854 2.70631 2.95245
Ref. Mon. 173-----	47 10 54.76 68 53 31.44	234 25 03 304 01 25	54 25 10 124 01 57	Ref. Mon. C-106-- Ref. Mon. S-112--	260.1 1,112.9	2.41519 3.04644
Ref. Mon. 175-----	47 10 48.73 68 54 00.88	247 54 22 339 29 51	67 54 51 159 30 09	Ref. Mon. C-106-- Ref. Mon. S-113--	897.4 1,489.0	2.95297 3.17290
Ref. Mon. S-115-----	47 10 44.89 68 54 13.92	247 35 24 279 55 26	67 36 02 99 56 29	Ref. Mon. C-106-- Ref. Mon. S-112--	1,196.3 1,844.5	3.07785 3.26587
Ref. Mon. C-107-----	47 11 16.09 68 54 48.64	106 31 51 189 22 14	286 31 19 9 22 20	S-116----- C-109-----	963.8 1,011.2	2.98397 3.00482
Ref. Mon. S-116-----	47 11 15.77 68 54 53.21	108 56 39 194 30 43 264 07 01	288 56 10 14 30 52 84 07 04	S-116----- C-109----- Ref. Mon. C-107--	875.2 1,040.8 96.7	2.94209 3.01736 1.98538
Ref. Mon. C-108-----	47 11 53.47 68 55 30.59	2 38 58 191 42 27 278 30 33	182 38 56 11 42 33 98 31 09	S-116----- C-110----- C-109-----	881.3 936.5 1,059.4	2.94513 2.97152 3.02506
Ref. Mon. S-117-----	47 11 48.57 68 55 36.56	196 27 18 219 40 20 270 15 39	16 27 29 39 40 25 90 16 20	C-110----- Ref. Mon. C-108-- C-109-----	1,114.1 196.7 1,173.3	3.04691 2.29377 3.06941
Ref. Mon. C-109-----	47 12 16.38 68 56 12.65	93 55 36 131 05 01 294 05 00	273 53 50 311 04 18 114 06 07	S-118----- C-111----- C-109-----	3,048.0 1,630.0 2,117.3	3.48402 3.21218 3.32578
Ref. Mon. S-118-----	47 12 11.30 68 56 16.84	209 22 15 289 16 50	29 22 18 109 18 00	Ref. Mon. C-109-- C-109-----	180.0 2,141.4	2.25533 3.33070
Ref. Mon. C-110-----	47 12 20.10 68 57 01.96	92 40 14 168 42 17 288 13 42	272 39 04 348 42 10 108 15 25	S-118----- C-111----- C-109-----	2,005.3 975.1 3,127.9	3.30218 2.98903 3.49525
Ref. Mon. S-119-----	47 12 10.60 68 57 12.87	218 02 56 261 58 32 282 04 43	38 03 04 81 59 16 102 06 34	Ref. Mon. C-110-- Ref. Mon. C-109-- C-109-----	372.6 1,280.0 3,273.0	2.57122 3.10720 3.51495

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—CON.	° ' "	° ' "	° ' "			
Ref. Mon. C-111----	47 12 50.10 68 58 02.65	41 03 35 89 54 50 155 53 29	221 03 10 269 53 46 335 53 03	S-118----- S-119----- C-112-----	1,105.1 1,852.9 1,884.7	3.04340 3.26785 3.27525
Ref. Mon. S-120----	47 12 43.13 68 58 20.71	168 36 34 240 28 14 260 30 21	348 36 21 60 28 27 80 31 12	C-112----- Ref. Mon. C-111-- C-111-----	1,974.4 436.8 1,486.4	3.29544 2.64024 3.17215
Ref. Mon. C-112----	47 13 12.87 68 58 31.74	60 20 39 134 21 40 171 10 50	240 19 56 314 20 25 351 10 45	S-119----- C-113----- C-112-----	1,427.6 2,996.7 1,029.0	3.15462 3.47664 3.01243
Ref. Mon. C-113----	47 14 04.72 69 00 34.48	14 44 51 103 53 55 110 54 01	194 44 40 283 52 59 290 52 56	S-120----- Ref. Mon. S-122-- C-114-----	1,158.2 1,651.8 1,997.5	3.06378 3.21797 3.30049
Ref. Mon. S-121----	47 13 41.47 69 00 24.41	163 33 15 266 31 57 290 25 31	343 33 07 86 33 14 110 26 53	Ref. Mon. C-113-- C-112----- Ref. Mon. C-112--	748.4 2,216.3 2,529.5	2.87411 3.34563 3.40303
Ref. Mon. S-124----	47 15 04.75 69 02 49.78	235 46 20	55 46 21	S-125-----	16.47	1.21673
Ref. Mon. C-116----	47 15 44.37 69 02 58.58	63 19 28 163 15 32 231 35 34	243 19 24 343 15 31 51 35 40	S-129----- S-130----- C-124-----	135.0 48.2 244.7	2.13031 1.68331 2.38857
Ref. Mon. S-126----	47 16 03.26 69 02 55.07	301 51 02	121 51 03	S-133-----	18.08	1.25720
Ref. Mon. C-118----	47 16 26.41 69 02 54.71	33 39 54 148 16 48 164 25 55	213 39 53 328 16 47 344 25 55	S-138----- S-139----- C-134-----	66.2 67.2 52.5	1.82060 1.82740 1.72015
Ref. Mon. S-134----	47 19 41.75 69 03 34.78	329 05 03	149 05 04	S-166-----	56.20	1.74972
Ref. Mon. C-126----	47 18 56.42 69 03 00.40	75 36 16	255 36 15	C-156-----	20.20	1.30529
Ref. Mon. S-135----	47 20 36.42 69 03 40.14	248 33 40	68 33 41	S-167-----	35.10	1.54536
Ref. Mon. C-127----	47 19 33.34 69 03 00.84	129 02 21	309 02 21	C-158-----	18.79	1.27404
Ref. Mon. S-136----	47 21 39.14 69 03 39.56	258 25 02	78 25 03	S-168-----	23.95	1.37931
Ref. Mon. C-128----	47 20 18.57 69 02 54.19	59 39 36	239 39 35	C-159-----	19.94	1.29966
Ref. Mon. S-137----	47 22 01.06 69 03 43.36	270 31 53	90 31 54	S-169-----	28.25	1.45102
Ref. Mon. C-129----	47 21 53.69 69 02 56.27	87 29 21	267 29 20	C-161-----	19.79	1.29645
Ref. Mon. S-143----	47 24 25.96 69 02 09.97	230 57 46 237 39 36 290 51 04	50 57 56 57 39 49 110 51 11	Ref. Mon. C-143-- C-177----- Ref. Mon. S-142--	347.3 436.4 203.7	2.54069 2.63990 2.30889
Ref. Mon. S-148----	47 25 34.93 69 03 06.47	184 22 29	4 22 29	S-211-----	8.57	0.93298



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN AND ST. FRANCIS RIVERS—CON.	° ' "	° ' "	° ' "			
Ref. Mon. C-144	47 24 38.76 69 02 07.81	190 13 06 273 52 38 288 27 04	10 13 08 93 52 48 108 27 12	S-192 C-178 S-190	213.7 278.7 229.4	2.32976 2.44506 2.36065
Ref. Mon. C-152	47 25 50.65 69 03 16.97	10 20 53 10 57 28 339 49 49	190 20 53 190 57 27 159 49 52	Ref. Mon. C-153 S-214 C-197	139.0 204.5 237.7	2.14307 2.31071 2.37595
Ref. Mon. S-154	47 25 28.41 69 05 15.59	173 48 58	353 48 58	S-228	15.83	1.19954
Ref. Mon. S-164	47 27 20.85 69 10 57.73	178 31 00	358 31 00	S-291	20.14	1.30396
Ref. Mon. S-165	47 27 11.77 69 11 24.56	143 50 43	323 50 42	S-297	30.98	1.49115
Ref. Mon. C-171	47 27 30.88 69 10 45.90	15 02 31	195 02 30	C-275	100.55	2.00239
Ref. Mon. C-172	47 27 24.04 69 11 08.84	324 24 09	144 24 09	C-280	18.31	1.26259
Mon. 179	47 27 32.37 69 13 33.88	214 54 41 267 05 29 317 18 35	34 54 43 87 05 54 137 18 37	Mon. 178 C-299 S-316	91.4 724.2 97.4	1.96076 2.85984 1.98854
Mon. 180	47 27 29.93 69 13 36.40	214 54 39 231 58 20 261 46 37	34 54 41 51 58 35 81 47 04	Mon. 179 C-300 C-299	91.9 548.1 783.9	1.96336 2.73887 2.89426
Mon. 180-A	47 27 26.17 69 13 40.27	34 54 36 214 54 36 255 04 46 280 15 11	214 54 27 34 54 39 75 05 16 100 15 28	Mon. 181 Mon. 180 C-299 S-315	466.8 141.7 886.8 489.6	2.66909 2.15140 2.94784 2.68987
POINTS SUPPLEMENTARY TO MINOR SCHEME, ST. JOHN RIVER						
Chapel of St. Joseph and St. Anthelm, spire, near Hamlin, Me., 1909.	47 04 12.98 67 48 25.30	141 57 17 213 08 53 290 36 22	321 57 02 33 08 56 110 36 24	Ref. Mon. S-4 Ref. Mon. S-3 Ref. Mon. S-1	720.1 162.3 1,309.7	2.85738 2.21020 3.11716
St. Leonard, New Brunswick, L'Eglise Church, spire, southeast of village, 1909.	47 08 51.05 67 54 29.12	5 12 43 91 54 27 348 23 59	185 12 41 271 54 08 168 24 09	Ref. Mon. S-20 Ref. Mon. S-21 Ref. Mon. S-19	605.2 521.3 1,455.8	2.78187 2.71709 3.16310
Van Buren, Me., customhouse, flagpole, 1909.	47 09 20.86 67 56 03.47	156 55 53 159 51 11 253 02 37	336 55 42 339 50 55 73 02 44	Ref. Mon. S-24 S-25 Ref. Mon. S-23	821.7 1,342.1 200.2	2.91473 3.12780 2.30150
Van Buren, Me., Episcopal Church, cross on spire, 1909.	47 09 21.98 67 55 58.66	149 35 07 255 16 11	329 34 52 75 16 14	Ref. Mon. S-24 Ref. Mon. S-23	836.4 93.1	2.92243 1.96895
Van Buren, Me., St. Mary's Catholic College, cupola flagpole, 1909.	47 09 39.39 67 56 33.67	194 10 57 301 49 20	14 11 03 121 49 49	S-25 Ref. Mon. S-23	709.5 974.2	2.85095 2.98864

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MINOR SCHEME, ST. JOHN RIVER—continued	° ' "	° ' "	° ' "			
Van Buren, Me., nuns' building, cross on red roof, 1909.	47 09 40.94 67 56 33.94	195 39 27 303 59 25	15 39 33 123 59 54	S-25----- Ref. Mon. S-23---	664.7 1,004.9	2.82262 3.00213
Van Buren, Me., convent school, base of gilded figure on dome, 1909.	47 09 38.62 67 56 23.80	207 04 48 308 20 42	27 04 52 128 21 04	Ref. Mon. S-24--- Ref. Mon. S-23---	233.0 790.0	2.36737 2.89765
Van Buren, Me., St. Bruno's Catholic Church, spire, 1909.	47 09 44.37 67 56 28.04	159 42 59 185 54 09 313 16 49	339 42 39 5 54 11 133 17 14	Ref. Mon. S-28--- S-25----- Ref. Mon. S-23---	1,654.6 536.7 974.0	3.21870 2.72970 2.98855
Van Buren, Me., fire house, bell clapper, 1909.	47 09 19.90 67 56 03.17	157 19 20 244 36 07	337 19 09 64 36 14	Ref. Mon. S-24--- Ref. Mon. S-23---	851.4 205.1	2.93014 2.31187
Van Buren Lumber Co.'s mill, largest stack, (Me.) 1909.	47 10 21.49 67 56 35.49	113 55 37 340 53 32	293 55 27 160 53 39	Ref. Mon. S-27--- S-25-----	297.8 648.2	2.47393 2.81171
St. Leonard, New Brunswick, building north of village, flagpole on cupola, 1909.	47 10 04.19 67 55 38.31	14 49 25 55 40 11 85 30 38	194 49 13 235 39 41 265 30 03	Ref. Mon. S-23--- Ref. Mon. S-24--- S-25-----	1,323.6 1,031.8 995.3	3.12177 3.01360 2.99797
St. Leonard, New Brunswick, large red barn, south peak, northeast of village, 1909.	47 10 41.20 67 54 15.54	40 40 53 56 23 54 65 57 20	220 39 41 236 22 24 245 55 45	Ref. Mon. S-23--- Ref. Mon. S-24--- S-25-----	3,194.3 3,116.1 2,995.4	3.50437 3.49360 3.47645
Van Buren, Me., iron cross on bowlder, 1909.	47 10 34.91 67 56 55.14	18 47 38 334 17 36	198 47 37 154 17 41	Ref. Mon. S-28--- Ref. Mon. S-27---	9.2 325.8	0.96477 2.51300
Van Buren, Me., judges' stand, race track, 1909.	47 10 27.91 67 56 56.33	159 36 27 186 04 29	339 36 17 6 04 30	Ref. Mon. S-29--- Ref. Mon. S-28---	758.4 208.5	2.87992 2.31914
Keegan, Me., St. John Lumber Co.'s mill, largest stack, 1909.	47 11 19.45 67 57 15.61	17 47 20 125 07 49 350 51 09	197 47 15 305 07 52 170 51 14	Ref. Mon. S-30--- S-31----- Ref. Mon. S-29---	455.6 680.5 892.0	2.65863 2.83281 2.95038
Keegan, Me., old schoolhouse, flagpole, 1909.	47 10 57.74 67 57 15.82	150 19 48 325 10 36	330 19 43 145 10 41	Ref. Mon. S-30--- Ref. Mon. S-29---	272.3 256.0	2.43509 2.40832
Ste. Anne, New Brunswick, church spire, 1909.	47 14 51.64 68 01 47.26	42 58 44 94 14 13 341 00 10	222 58 25 274 13 21 161 00 28	Ref. Mon. S-39--- Ref. Mon. S-40--- Ref. Mon. S-38---	797.3 1,601.0 1,591.4	2.90160 3.20439 3.20179
Ste. Anne, New Brunswick, butter factory stack, 1909.	47 14 42.96 68 01 36.77	101 59 59 346 28 44	281 58 55 166 28 54	Ref. Mon. S-40--- Ref. Mon. S-38---	1,857.8 1,272.2	3.26899 3.10454
Lille, Me., boom house, smoke pipe, southeast of village, 1909.	47 15 59.27 68 05 27.67	128 12 58 342 29 19	308 12 00 162 29 30	Ref. Mon. S-43--- Ref. Mon. S-42---	2,096.3 1,058.1	3.32146 3.02452

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MINOR SCHEME, ST. JOHN RIVER—continued						
	° ' "	° ' "	° ' "			
Lille, Me., school-house flagpole, 1909.	47 16 43.53 68 06 31.24	77 18 56 325 08 05	257 18 45 145 09 03	Ref. Mon. S-43--- Ref. Mon. S-42---	318.7 2,895.1	2.50343 3.46166
Lille, Me., old church, cross on cupola, 1909.	47 16 44.37 68 06 35.54	66 29 49 112 46 25 323 59 18	246 29 41 292 45 26 144 00 19	Ref. Mon. S-43--- Ref. Mon. S-44--- Ref. Mon. S-42---	240.5 1,395.2 2,968.7	2.38114 3.14464 3.47256
Lille, Me., new church, northwest cupola, 1909.	47 16 44.97 68 06 33.61	66 17 56 111 26 50 324 49 54	246 17 47 291 26 04 144 51 08	Ref. Mon. S-43--- Ref. Mon. S-44--- Ref. Mon. S-42---	285.1 1,425.7 2,960.2	2.45504 3.15403 3.47133
Lille, Me., sawmill stack, northwest of village, 1909.	47 17 04.87 68 07 16.13	77 52 02 190 12 03 319 03 10	257 51 47 10 12 07 139 03 32	Ref. Mon. S-44--- Ref. Mon. C-42--- Ref. Mon. S-43---	443.4 560.0 965.1	2.64682 2.74820 2.98457
Grand Isle, Me., windmill on barn, center of upright, 1909.	47 18 17.88 68 09 11.93	66 46 02 319 34 18 333 54 06	246 45 48 139 35 25 153 54 25	Ref. Mon. S-46--- Ref. Mon. S-44--- Ref. Mon. S-45---	413.0 3,084.3 1,251.5	2.61597 3.48915 3.09743
Green River, New Brunswick, hotel, flagpole on cupola, 1909.	47 19 07.22 68 08 42.52	1 27 25 30 35 45 83 22 33	181 27 23 210 35 10 263 21 32	Ref. Mon. S-45--- Ref. Mon. S-46--- Ref. Mon. S-47---	2,648.6 1,959.5 1,637.6	3.42301 3.29214 3.21420
Grand Isle, Me., Crawford's sawmill stack, 1909.	47 18 37.34 68 09 19.89	15 31 55 131 04 22 337 24 27	195 31 47 311 03 48 157 24 52	Ref. Mon. S-46--- Ref. Mon. S-47--- Ref. Mon. S-45---	793.0 1,116.7 1,868.3	2.89926 3.04793 3.27145
Grand Isle, Me., flagpole on house, 1909.	47 18 30.51 68 09 23.37	14 07 56 140 52 04 332 24 50	194 07 51 320 51 33 152 25 18	Ref. Mon. S-46--- Ref. Mon. S-47--- Ref. Mon. S-45---	570.1 1,218.0 1,707.9	2.75596 3.08566 3.23247
St. Basil, New Brunswick, flagpole on brown house with red roof, 1909.	47 21 21.93 68 13 40.86	13 54 24 69 49 48 324 20 37	193 54 14 249 48 51 144 21 19	Ref. Mon. S-52--- Ref. Mon. S-53--- Ref. Mon. S-51---	1,219.2 1,753.6 2,423.1	3.08606 3.24392 3.38438
St. Basil, New Brunswick, church spire, 1909.	47 21 24.09 68 13 56.42	63 01 51 319 29 21 358 27 42	243 01 05 139 30 14 178 27 43	Ref. Mon. S-53--- Ref. Mon. S-51--- Ref. Mon. S-52---	1,480.4 2,677.3 1,250.6	3.17039 3.42769 3.09711
St. Basil, New Brunswick, convent cupola, gilded cross, 1909.	47 21 30.31 68 14 10.01	50 08 35 317 43 54 347 31 53	230 07 59 137 44 57 167 32 04	Ref. Mon. S-53--- Ref. Mon. S-51--- Ref. Mon. S-52---	1,347.2 3,009.9 1,476.9	3.12944 3.47855 3.16935
St. Basil, New Brunswick, flagpole on white house with black roof, west of village, 1909.	47 21 41.56 68 14 54.93	4 19 15 48 07 53 324 48 44	184 19 12 228 07 04 144 49 28	Ref. Mon. S-53--- Ref. Mon. S-54--- Ref. Mon. S-52---	1,214.3 2,288.7 2,189.4	3.08433 3.35958 3.34032
St. Basil, New Brunswick, flagpole on white house with red roof, west of village, 1909.	47 21 40.57 68 15 38.28	27 57 16 58 36 48 325 15 47	207 56 49 238 35 38 145 16 16	Ref. Mon. S-54--- Ref. Mon. S-55--- Ref. Mon. S-53---	1,694.7 2,060.1 1,436.2	3.22910 3.40826 3.15720
St. David, Me., church, cross on cupola, 1909.	47 20 57.44 68 16 40.81	89 52 30 121 59 09 287 41 31	269 51 59 301 58 06 107 41 49	Ref. Mon. S-55--- Ref. Mon. C-54--- Ref. Mon. S-54---	872.9 2,102.2 543.9	2.94098 3.32268 2.73551
St. David, Me., schoolhouse belfry, 1909.	47 20 56.51 68 16 47.28	92 04 56 281 47 35	272 04 30 101 47 58	Ref. Mon. S-55--- Ref. Mon. S-54---	737.6 668.1	2.86780 2.82486



## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MINOR SCHEME, ST. JOHN RIVER—continued						
	° ' "	° ' "	° ' "			
Madawaska, Me., sawmill stack, 1909.	47 21 17.12 68 18 13.79	112 10 56 126 53 19 198 23 00	292 09 48 306 52 41 18 23 06	C-56----- Ref. Mon. C-55--- Ref. Mon. C-54---	2,052.2 1,378.5 532.9	3.31222 3.13941 2.72668
Madawaska, Me., flagpole on yellow store, 1909.	47 21 11.84 68 18 23.85	89 36 25 138 00 49 350 59 44	269 35 35 318 00 18 170 59 45	Ref. Mon. S-57--- Ref. Mon. C-55--- Ref. Mon. S-56---	1,426.7 1,332.4 202.8	3.15432 3.12464 2.30700
Edmundston, New Brunswick, flagpole on square white cupola, 1909.	47 21 55.92 68 19 40.20	313 41 49 352 41 40	133 42 46 172 41 46	Ref. Mon. S-56--- Ref. Mon. S-57---	2,260.3 1,382.7	3.35417 3.14072
Edmundston, New Brunswick, flagpole on pointed green cupola, 1909.	47 21 56.73 68 19 21.75	8 36 43 321 50 01	188 36 36 141 50 45	Ref. Mon. S-57--- Ref. Mon. S-56---	1,412.2 2,017.9	3.14990 3.30489
Madawaska, Me., customhouse, flagpole, 1909.	47 21 20.14 68 19 26.20	23 56 12 72 48 38 288 48 32	203 56 08 252 48 03 108 49 19	Ref. Mon. S-57--- Ref. Mon. S-58--- Ref. Mon. S-56---	291.4 739.4 1,415.8	2.46443 2.86889 3.15100
Edmundston, New Brunswick, flagpole on cupola with round windows, 1909.	47 21 52.20 68 19 55.51	4 18 56 306 29 22 338 25 04	184 18 42 126 30 30 158 25 21	Ref. Mon. S-58--- Ref. Mon. S-56--- Ref. Mon. S-57---	1,212.0 2,432.1 1,351.0	3.08352 3.38599 3.13067
Edmundston, New Brunswick, flagpole on cupola of brick building, 1909.	47 22 18.21 68 19 30.57	0 44 04 16 59 11 327 31 25	180 44 03 196 58 39 147 32 15	Ref. Mon. S-57--- Ref. Mon. S-58--- Ref. Mon. S-56---	2,059.8 2,103.7 2,666.9	3.31383 3.32298 3.42600
Edmundston, New Brunswick, Catholic Church, spire, 1909.	47 21 46.18 68 19 57.65	2 35 14 45 50 55 333 08 58	182 35 12 225 50 20 153 09 31	Ref. Mon. S-58--- Ref. Mon. S-59--- Ref. Mon. S-57---	1,024.0 1,390.5 1,199.9	3.01028 3.14317 3.07915
Edmundston, New Brunswick, flagpole on sheet-iron covered cupola, 1909.	47 21 47.94 68 19 38.72	22 23 06 352 40 31	202 22 50 172 40 36	Ref. Mon. S-58--- Ref. Mon. S-57---	1,164.8 1,134.0	3.06626 3.05462
Madawaska, Me., flagpole on schoolhouse, 1909.	47 21 23.86 68 19 54.89	201 21 03 238 43 20	21 21 11 58 43 56	Ref. Mon. C-56--- Ref. Mon. C-55---	607.8 1,192.4	2.78378 3.07641
Edmundston, New Brunswick, sawmill stack, 1909.	47 21 49.17 68 19 54.02	6 15 41 338 10 09	186 15 37 158 10 26	Ref. Mon. S-58--- Ref. Mon. S-57---	1,121.8 1,252.7	3.04993 3.09784
Madawaska, Me., chimney on yellow house, 1909.	47 21 17.38 68 20 24.09	227 25 11 243 20 15	47 25 40 63 21 12	Ref. Mon. C-56--- Ref. Mon. C-55---	1,132.5 1,825.8	3.05403 3.26145
Upper Frenchville, Me., church spire, 1910.	47 16 46.88 68 25 38.27	68 43 22 99 34 47 148 31 56	248 43 04 279 33 23 328 31 30	Ref. Mon. S-72--- Ref. Mon. S-73--- Ref. Mon. C-68---	541.8 2,451.7 1,436.0	2.73387 3.38946 3.15715
St. Hilaire, New Brunswick, church spire, 1910.	47 17 16.24 68 26 31.92	68 51 05 126 08 37 330 33 29	248 50 20 306 07 53 150 33 50	Ref. Mon. S-73--- Ref. Mon. C-69--- Ref. Mon. S-72---	1,383.1 1,548.6 1,266.9	3.14086 3.18995 3.10274

## SOURCE OF ST. CROIX RIVER TO LAKE POHENAGAMOOK—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MINOR SCHEME, ST. JOHN RIVER—continued						
	° ' "	° ' "	° ' "			
Fort Kent, Me., Catholic school, cross, 1910.	47 15 11.44	97 01 16	277 00 41	Ref. Mon. C-82---	1,023.5	3.01010
	68 35 31.48	200 25 39	20 25 49	Ref. Mon. S-88---	830.1	2.91913
		334 16 31	154 16 43	Ref. Mon. S-89---	792.4	2.89894
Fort Kent, Me., Madawaska Train- ing School, weather vane, 1910.	47 15 00.47	61 15 23	241 14 45	S-90-----	1,265.3	3.10220
	68 35 27.54	112 54 10	292 53 32	Ref. Mon. C-82---	1,192.8	3.07655
		190 29 36	10 29 43	Ref. Mon. S-88---	1,136.0	3.05536
Fort Kent, Me., Protestant Church, spire, 1910.	47 14 59.02	64 56 52	244 56 11	S-90-----	1,331.1	3.12422
	68 35 22.95	185 25 41	5 25 49	Ref. Mon. S-88---	1,167.0	3.06707
		333 29 28	153 29 34	Ref. Mon. S-89---	368.8	2.56674
Fort Kent, Me., astronomic pier, 1910.	47 15 00.45	55 31 36	235 31 06	S-90-----	1,074.1	3.03105
	68 35 38.19	201 04 38	21 04 57	Ref. Mon. S-88---	1,197.7	3.07833
		307 39 22	127 39 39	Ref. Mon. S-89---	612.6	2.78716
Clair, New Bruns- wick, church spire, 1910.	47 15 15.75	12 59 07	192 58 55	S-90-----	1,109.1	3.04498
	68 36 08.45	238 50 52	58 51 29	Ref. Mon. S-88---	1,246.6	3.09571
		307 03 55	127 04 34	Ref. Mon. S-89---	1,405.1	3.14771
Ledges, New Bruns- wick, church spire, 1910.	47 14 31.62	117 55 07	297 54 14	Ref. Mon. C-92---	1,683.0	3.22608
	68 42 13.68	183 53 05	3 53 06	Ref. Mon. C-91---	674.6	2.82905
		229 33 09	49 33 40	Ref. Mon. C-90---	1,169.8	3.06810
Connor, New Bruns- wick, Protestant Church, spire, 1910.	47 12 39.96	23 45 35	203 45 17	Ref. Mon. S-106--	1,315.4	3.11906
	68 49 23.42	265 53 20	85 54 31	Ref. Mon. S-104--	1,762.5	3.24614
		318 10 37	138 10 56	Ref. Mon. S-105--	802.0	2.90416
Connor, New Bruns- wick, Catholic Church, spire, 1910.	47 12 23.71	223 02 41	43 03 04	Ref. Mon. C-99---	977.4	2.99008
	68 50 04.58	273 54 40	93 55 29	Ref. Mon. S-105--	1,404.2	3.14744
		334 24 39	154 24 51	Ref. Mon. S-106--	778.6	2.89130
St. Francis, Me., Protestant Church, spire, 1910.	47 10 34.96	37 27 17	217 26 52	Ref. Mon. S-113--	1,221.3	3.08682
	68 53 00.86	150 26 51	330 26 36	Ref. Mon. C-106--	876.7	2.94284
		189 48 35	9 48 43	Ref. Mon. C-105--	1,353.8	3.13155
St. Francis, Me., Catholic Church, spire, 1910.	47 10 06.94	169 49 59	349 49 54	Ref. Mon. S-114--	844.7	2.92671
	68 54 07.15	242 58 19	62 59 17	Ref. Mon. S-112--	1,879.5	3.27406
		279 03 07	99 03 30	Ref. Mon. S-113--	661.7	2.82068
St. Francis, Me., upper schoolhouse, west of village, 1910.	47 09 47.27	225 30 09	45 31 00	Ref. Mon. S-114--	2,053.0	3.31239
	68 55 23.77	257 28 39	77 29 58	Ref. Mon. S-113--	2,322.5	3.36595

GEOGRAPHIC POSITIONS OF TRIANGULATION AND TRAVERSE STATIONS, LAKE POHENA-  
GAMOOK TO THE VERMONT-QUEBEC BOUNDARY

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MAJOR SCHEME TRIANGULATION	° ' "	° ' "	° ' "			
Leverrier (Geodetic Survey of Canada).	46 44 47.389 69 57 02.632					
Talon (Geodetic Survey of Canada).	46 44 36.053 70 06 10.933	268 13 19.06	88 19 58.39	Leverrier-----	11, 644. 41	4. 0661174
Standon (Geodetic Survey of Canada).	46 36 17.888 70 29 19.373	242 19 45.78 248 53 17.18	62 36 35.83 69 16 46.13	Talon----- Leverrier-----	33, 280. 30 44, 068. 97	4. 5221872 4. 6441329
Bonnet-----	46 32 25.106 70 20 30.091	122 34 48.1 218 54 21.7 232 24 56.0	302 28 23.7 39 04 46.3 52 41 59.3	Standon----- Talon----- Leverrier-----	13, 368. 0 29, 040. 1 37, 700. 7	4. 1260676 4. 4629975 4. 5763500
Hardwood Mountain	46 24 47.425 70 01 23.551	120 08 04.3 120 59 39.1 170 33 48.6	299 54 13.0 300 39 23.4 350 30 19.9	Bonnet----- Standon----- Talon-----	28, 248. 0 41, 606. 1 37, 209. 5	4. 4509876 4. 6191574 4. 5706539
St. Justine Church, northeast spire.	46 24 38.226 70 20 56.231	182 12 45.1 206 55 02.1 269 13 56.1	2 13 04.1 27 05 45.1 89 28 05.5	Bonnet----- Talon----- Hardwood Moun- tain.	14, 427. 0 41, 513. 8 25, 047. 7	4. 1591765 4. 6181922 4. 3987680
Maheux-----	46 08 57.112 70 16 17.156	168 24 33.0	348 21 11.3	St. J u s t i n e Church, north- east spire.	29, 666. 5	4. 4722660
		172 56 00.7 191 01 26.4	352 52 57.7 11 08 45.7	Bonnet----- Talon-----	43, 809. 9 67, 301. 0	4. 6415720 4. 8280215
Megantic (Geodetic Survey of Canada).	45 26 51.567 71 07 15.050					
Linier (Geodetic Survey of Canada).	45 49 45.435 70 22 22.431	54 14 17.17	233 42 12.08	Megantic-----	72, 109. 93	4. 8579951
Bald-----	45 45 59.942 70 12 17.053	63 56 33.5 118 05 44.0 171 11 41.4	243 17 16.8 297 58 30.0 351 05 27.4	Megantic----- Linier----- St. J u s t i n e Church, north- east spire.	79, 777. 8 14, 812. 0 72, 442. 3	4. 901882 4. 170615 4. 859992
		173 05 26.5 190 59 20.5	353 02 33.9 11 07 11.3	Maheux----- Hardwood Moun- tain.	42, 833. 1 73, 221. 1	4. 631780 4. 864636
Ste. Cecile-----	45 41 19.489 70 58 12.194	23 46 15.8 251 12 09.7 261 27 24.4	203 39 48.1 71 37 49.8 82 00 17.2	Megantic----- Linier----- Bald-----	29, 267. 0 49, 015. 0 60, 201. 6	4. 466378 4. 690329 4. 779608
Kibby-----	45 25 07.803 70 32 41.646	94 16 14.6 132 15 11.0 214 21 13.8	273 51 37.4 311 56 58.4 34 35 48.7	Megantic----- Ste. Cecile----- Bald-----	45, 182. 9 44, 744. 1 46, 892. 9	4. 654974 4. 650736 4. 671107
Snow-----	45 17 29.594 70 42 35.410	118 27 44.5 155 21 06.5 222 21 29.1	298 10 11.5 335 09 58.6 42 28 31.6	Megantic----- Ste. Cecile----- Kibby-----	36, 575. 3 48, 605. 7 19, 160. 9	4. 563188 4. 686687 4. 282415
Hughey-----	45 32 59.993 70 40 56.305	71 47 56.6 124 35 48.5 323 33 48.9	251 29 10.6 304 23 28.3 143 39 41.7	Megantic----- Ste. Cecile----- Kibby-----	36, 115. 0 27, 230. 2 18, 108. 3	4. 557688 4. 435051 4. 257878
Traverse station 69=H.	45 39 42.134 70 33 32.294	95 30 27.5 357 39 49.8	275 12 48.9 177 40 26.0	Ste. Cecile----- Kibby-----	32, 171. 3 27, 015. 3	4. 507468 4. 431610



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MAJOR SCHEME TRIANGULATION — continued.						
	° ' "	° ' "	° ' "			
Ken -----	45 33 08.612	123 40 20.3	303 27 47.1	Ste. Cecile -----	27,408.5	4.437886
	70 40 38.055	217 10 16.2	37 15 20.4	Traverse station 69=H.	15,255.4	4.183424
		325 04 34.9	145 10 14.7	Kibby -----	18,093.6	4.257524
Mon. 411 -----	45 25 43.075	20 26 21.3	200 23 15.9	Snow -----	16,255.4	4.210998
	70 38 14.910	278 30 51.3	98 34 48.7	Kibby -----	7,326.7	3.864908
Moccasin -----	45 26 07.605	24 58 25.6	204 54 22.4	Snow -----	17,636.5	4.246412
	70 36 53.703	66 47 14.3	246 46 16.5	Mon. 411 -----	1,920.8	3.283480
		288 35 43.7	108 38 43.3	Kibby -----	5,782.2	3.762093
Bump -----	45 27 16.503	311 42 52.2	131 44 10.4	Moccasin -----	3,195.8	3.504585
	70 38 43.458	347 51 26.5	167 51 46.9	Mon. 411 -----	2,950.3	3.469869
Layton -----	45 28 08.524	8 47 08.4	188 46 45.6	Mon. 411 -----	4,543.6	3.657399
	70 37 42.987	39 17 29.8	219 16 46.6	Bump -----	2,074.9	3.316996
		343 59 19.5	163 59 54.5	Moccasin -----	3,883.6	3.589230
Merrill -----	45 28 34.753	279 52 10.0	99 54 42.7	Layton -----	4,714.3	3.673415
	70 41 16.792	305 56 04.7	125 57 54.2	Bump -----	4,114.8	3.614353
Van Dyke -----	45 29 34.186	21 04 25.9	201 04 02.7	Merrill -----	1,966.3	3.293653
	70 40 44.241	303 52 31.8	123 54 41.3	Layton -----	4,742.4	3.675999
		328 18 15.4	148 19 41.7	Bump -----	4,995.0	3.698538
Mon. 410 -----	45 26 42.218	140 30 18.4	320 28 44.4	Merrill -----	4,503.0	3.653498
	70 39 04.937	203 47 35.7	23 47 51.0	Bump -----	1,156.8	3.063263
		329 13 13.0	149 13 48.7	Mon. 411 -----	2,125.1	3.327382
Mon. 405 -----	45 30 11.991	292 45 01.7	112 46 33.0	Van Dyke -----	3,016.5	3.479499
	70 42 52.351	325 20 13.3	145 21 21.4	Merrill -----	3,649.4	3.562217
Wait -----	45 31 43.580	24 47 54.6	204 47 11.7	Mon. 405 -----	3,114.6	3.493408
	70 41 52.178	339 43 51.4	159 44 39.8	Van Dyke -----	4,258.2	3.629229
Lowell -----	45 31 51.570	22 17 18.5	202 16 21.3	Van Dyke -----	4,583.6	3.661208
	70 39 24.181	85 37 20.7	265 35 35.1	Wait -----	3,221.0	3.507985
		342 17 39.6	162 18 52.0	Layton -----	7,228.0	3.859018
Mon. 425 -----	45 25 52.765	213 22 27.7	33 25 20.9	Mon. 405 -----	9,585.9	3.981632
	70 46 55.247	235 45 02.7	55 49 03.9	Merrill -----	8,893.5	3.949073
		261 27 32.1	81 33 07.2	Mon. 410 -----	10,335.5	4.014333
		271 27 48.5	91 33 59.2	Mon. 411 -----	11,315.1	4.053658
		339 58 11.5	160 01 16.4	Snow -----	16,531.1	4.218302
Dome -----	45 32 09.237	68 38 55.0	248 37 48.4	Wait -----	2,174.7	3.337394
	70 40 18.842	152 35 24.7	332 34 58.1	Hughey -----	1,765.2	3.246792
		294 41 26.2	114 42 05.2	Lowell -----	1,305.4	3.115760
Dean -----	45 32 36.508	40 01 36.7	220 00 51.6	Wait -----	2,133.7	3.329129
	70 40 48.941	307 01 18.9	127 02 19.4	Lowell -----	2,303.6	3.362411
		322 11 53.5	142 12 15.0	Dome -----	1,065.5	3.027543
Boundary -----	45 32 31.441	18 45 12.0	198 44 55.5	Wait -----	1,560.4	3.193235
	70 41 29.061	218 52 15.6	38 52 39.1	Hughey -----	1,132.3	3.053946
		259 48 28.8	79 48 57.4	Dean -----	884.3	2.946618
		294 13 05.4	114 13 55.5	Dome -----	1,670.6	3.222870
Lowelltown south base.	45 32 14.587	131 21 33.8	311 21 14.4	Boundary -----	787.5	2.896250
	70 41 01.816	184 52 31.6	4 52 35.7	Hughey -----	1,406.9	3.148270
		202 25 37.8	22 25 47.0	Dean -----	732.1	2.864593
		280 02 22.9	100 02 53.6	Dome -----	946.9	2.976312
Lowelltown north base.	45 32 28.931	236 54 03.4	56 54 15.2	Dean -----	428.4	2.631852
	70 41 05.484	300 59 32.7	121 00 06.0	Dome -----	1,180.5	3.072078
		349 48 45.1	169 48 47.7	Lowelltown south base	449.91	2.653130

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MAJOR SCHEME TRIANGULATION—continued	° ' "	° ' "	° ' "			
Gosford.....	45 18 06.050 70 52 02.304	204 51 02.9 275 09 00.1	24 54 41.4 95 15 43.0	Mon. 425..... Snow.....	15,882.5 12,403.4	4.200918 4.093539
Woburn.....	45 23 02.930 70 54 48.277	242 56 44.3 302 44 43.0 338 27 57.9	63 02 21.2 122 53 24.3 158 29 56.0	Mon. 425..... Snow..... Gosford.....	11,546.0 18,987.5 9,851.8	4.062431 4.278467 3.993515
Mon. 470.....	45 20 51.955 71 00 40.411	242 08 52.2 294 21 45.7	62 13 02.7 114 27 54.1	Woburn..... Gosford.....	8,664.7 12,391.6	3.937752 4.093127
Rump.....	45 12 13.770 71 03 50.671	194 30 53.7 210 28 35.8 234 46 57.5	14 33 08.9 30 35 01.2 54 55 20.6	Mon. 470..... Woburn..... Gosford.....	16,525.8 23,266.0 18,891.0	4.218163 4.366721 4.276256
Bon Durban.....	45 17 42.995 71 06 18.345	231 34 00.9 267 43 48.8 342 24 15.8	51 38 01.2 87 53 57.2 162 26 00.7	Mon. 470..... Gosford..... Rump.....	9,391.5 18,665.4 10,661.5	3.972736 4.271038 4.027819
Pros.....	45 15 13.210 71 13 22.152	243 22 05.7 293 54 02.9	63 27 06.8 114 00 48.6	Bon Durban..... Rump.....	10,330.7 13,642.3	4.014129 4.134887
Salmon.....	45 14 37.775 71 08 10.226	99 10 00.3 203 05 21.7 308 06 29.5	279 06 18.8 23 06 41.2 128 09 33.8	Pros..... Bon Durban..... Rump.....	6,889.7 6,216.4 7,199.3	3.838203 3.793540 3.857289
Northwest Knoll.....	45 18 09.963 71 13 04.265	4 05 18.6 275 20 15.0 315 35 39.5	184 05 05.9 95 25 03.5 135 39 08.4	Pros..... Bon Durban..... Salmon.....	5,470.5 8,883.4 9,164.7	3.738026 3.948581 3.962117
Spect.....	45 15 07.193 71 14 01.454	192 27 07.7 257 45 58.6	12 27 48.3 77 46 26.5	Northwest Knoll..... Pros.....	5,778.4 876.9	3.761807 2.942958
Bien.....	45 18 04.322 71 17 07.629	268 05 40.7 317 02 35.7 323 24 05.8	88 08 33.7 137 05 15.9 143 26 18.1	Northwest Knoll..... Pros..... Spect.....	5,305.1 7,215.1 6,809.5	3.724693 3.858242 3.833113
Indian.....	45 12 03.301 71 16 37.453	176 37 26.4 210 55 38.1	356 37 05.0 30 57 28.9	Bien..... Spect.....	11,164.5 6,618.9	4.047840 3.820787
Howe.....	45 15 27.076 71 21 27.369	229 21 43.6 273 34 05.0 314 49 04.4	49 24 48.2 93 39 21.8 134 52 30.2	Bien..... Spect..... Indian.....	7,457.5 9,742.7 8,920.4	3.872595 3.988678 3.950382
Joe.....	45 14 20.378 71 23 36.161	233 44 32.8 294 48 45.8	53 46 04.3 114 53 43.0	Howe..... Indian.....	3,482.6 10,068.1	3.541898 4.002948
Eck.....	45 13 44.127 71 23 05.605	149 13 29.9 213 58 33.0 290 08 24.4	329 13 08.2 33 59 42.8 110 12 59.9	Joe..... Howe..... Indian.....	1,302.6 3,832.8 9,023.5	3.114796 3.583522 3.955375
Hereford (Geodetic Survey of Canada).....	45 04 57.486 71 36 05.573	222 45 08.67	43 05 38.00	Megantic.....	55,399.04	4.7435022
Metallak.....	45 09 34.081 71 24 13.348	61 19 28.4 185 14 36.5 245 07 16.4	241 11 03.7 5 15 02.9 65 12 39.8	Hereford..... Joe..... Indian.....	17,754.7 8,875.4 10,968.2	4.249313 3.948188 4.040134
Sightly.....	45 13 22.106 71 27 05.547	37 11 18.0 248 28 58.4 262 34 36.7 280 00 11.1 331 52 49.7	217 04 55.1 68 31 27.1 82 37 27.1 100 07 36.9 151 54 51.9	Hereford..... Joe..... Eck..... Indian..... Metallak.....	19,540.4 4,909.1 5,278.6 13,920.3 7,980.1	4.290934 3.691003 3.722521 4.143649 3.902008
Quillette (south base).....	45 10 24.683 71 27 29.752	48 11 20.9 185 30 26.7 289 59 29.8	228 05 15.3 5 30 43.9 110 01 49.1	Hereford..... Sightly..... Metallak.....	15,135.9 5,502.6 4,564.9	4.180008 3.740568 3.659429

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MAJOR SCHEME TRIANGULATION—continued						
	° ' "	° ' "	° ' "			
Crete (north base)---	45 10 54.105 71 27 05.861	29 52 21.4 180 05 09.6 303 14 17.4	209 52 04.4 0 05 09.8 123 16 19.7	Ouilette----- Sightly----- Metallak-----	1,047.44 4,568.9 4,505.0	3.020131 3.659811 3.653695
Corbert-----	45 12 00.174 71 25 53.052	35 37 02.5 147 58 59.7 334 13 25.4	215 35 53.9 327 58 08.3 154 14 36.2	Ouilette----- Sightly----- Metallak-----	3,625.8 2,983.3 5,007.9	3.559407 3.474694 3.699654
Knoll-----	45 10 30.605 71 25 06.789	86 39 44.4 105 36 11.0 326 13 05.5	266 38 03.0 285 34 46.6 146 13 43.4	Ouilette----- Crete----- Metallak-----	3,127.1 2,699.2 2,099.3	3.495140 3.431232 3.322065
Laperle-----	45 10 16.436 71 26 41.979	103 43 04.4 155 50 57.5 258 06 27.0	283 42 30.5 335 50 40.6 78 07 34.5	Ouilette----- Crete----- Knoll-----	1,073.8 1,274.4 2,124.1	3.030934 3.105315 3.327179
Hill-----	45 03 24.222 71 28 51.664	106 54 55.7 187 08 58.4	286 49 48.5 7 10 13.6	Hereford----- Sightly-----	9,919.2 18,602.0	3.996478 4.269560
Hill tablet-----	45 03 24.186 71 28 52.243	265 01 45	85 01 45	Hill-----	12.73	1.10473
Wheeler-----	45 05 02.671 71 29 47.146	88 55 45.2 338 13 27.7	268 51 17.2 158 14 07.0	Hereford----- Hill-----	8,278.0 3,272.5	3.917928 3.514881
Lambert-----	45 02 51.663 71 31 28.020	122 37 56.8 196 23 38.2 208 36 38.8 253 36 50.5	302 34 40.3 16 26 44.2 28 37 50.2 73 38 41.2	Hereford----- Sightly----- Wheeler----- Hill-----	7,208.2 20,289.5 4,607.2 3,566.1	3.857829 4.307272 3.663433 3.552190
Beecher-----	45 00 44.066 71 29 07.507	130 34 24.2 142 01 36.4 173 48 08.6	310 29 28.3 321 59 57.0 353 47 40.5	Hereford----- Lambert----- Wheeler-----	12,037.7 4,997.7 8,030.1	4.080545 3.698768 3.904722
Beecher tablet-----	45 00 44.050 71 29 07.439	108 23 130 34 14.1	288 23 310 29 18.2	Beecher----- Hereford-----	1.565 12,039.2	0.194514 4.080597
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION						
Mon. 269-----	46 44 41.566 69 56 55.564	140 09 32.8	320 09 27.7	Leverrier-----	234.2	2.369565
Mon. 273-----	46 42 07.619 69 59 28.624	212 07 49.6 214 20 49.2	32 09 35.9 34 22 40.6	Leverrier----- Mon. 269-----	5,826.8 5,758.76	3.765431 3.760329
Mon. 303-----	46 25 48.267 70 03 15.559	308 08 09.9	128 09 31.0	Hardwood Mtn---	3,041.4	3.483075
Mon. 307-----	46 25 12.831 70 03 23.074	188 20 31.2 287 04 17.7	8 20 36.7 107 05 44.3	Mon. 303----- Hardwood Mtn---	1,105.87 2,670.4	3.043706 3.426570
Ref. Mon. S-73-----	46 09 31.183 70 15 03.088	56 30 27.4	236 29 33.9	Maheux-----	1,906.0	3.280121
Ref. Mon. S-74-----	46 09 03.452 70 14 23.300	85 25 50.0 135 05 07.2	265 24 27.8 315 04 38.5	Maheux----- Ref. Mon. S-73---	2,451.2 1,209.16	3.389376 3.082483
Bear-----	45 30 31.891 70 39 49.906	33 31 01.8 81 12 04.4 129 50 23.9 168 12 02.3	213 30 23.0 261 09 54.3 309 48 56.7 348 11 41.7	Van Dyke----- Mon. 405----- Wait----- Dome-----	2,136.7 4,008.0 3,455.6 3,070.2	3.329734 3.602933 3.538520 3.487172



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Saddle-----	45 22 41.943 70 39 41.659	21 26 23.8 122 02 15.7 198 38 07.4 243 43 08.5	201 24 20.2 301 57 06.9 18 39 09.2 63 48 07.6	Snow----- Mon. 425----- Mon. 411----- Kibby-----	10,358.3 11,118.5 5,901.6 10,184.9	4.015290 4.046046 3.770969 4.007955
Mon. 402-----	45 32 48.770 70 41 23.566	12 33 50.1 239 37 56.0 296 44 49.1	192 33 46.1 59 38 15.5 116 45 13.7	Boundary----- Hughey----- Dean-----	548.1 685.4 841.1	2.738899 2.835935 2.924873
Mon. 403-6-----	45 31 36.319 70 42 26.843	12 00 32.6 329 25 12.2 344 48 47.8	192 00 14.5 149 26 25.4 164 49 37.8	Mon. 405----- Van Dyke----- Merrill-----	2,661.6 4,379.2 5,808.0	3.425149 3.641397 3.764030
Traverse station A--	45 32 48.875 70 41 23.687	12 13 30.3 239 58 28.7 296 51 42.2	192 13 26.3 59 58 48.2 116 52 06.8	Boundary----- Hughey----- Dean-----	550.7 686.0 844.9	2.740938 2.836346 2.926826
Hughey Ridge-----	45 33 02.028 70 40 49.339	42 23 13.3 67 26 08.9	222 22 44.8 247 26 03.9	Boundary----- Hughey-----	1,278.4 163.6	3.106663 2.213885
Traverse station B--	45 33 38.463 70 41 19.181	3 39 14.7 5 54 56.1 330 04 49.7	183 39 11.5 185 54 48.9 150 05 11.0	Traverse station A-- Boundary----- Hughey Ridge-----	1,534.02 2,080.2 1,297.8	3.185832 3.318110 3.113204
Mon. 403-----	45 31 47.862 70 42 01.038	20 37 33.7 57 31 48.7 304 30 25.9	200 36 57.1 237 31 30.2 124 30 32.2	Mon. 405----- Mon. 403-6----- Wait-----	3,162.4 663.7 233.3	3.500013 2.821988 2.367985
Mon. 404 ecc-----	45 31 08.57 70 42 27.05	180 17 37 322 32 23 342 11 06	0 17 37 142 33 36 162 11 57	Mon. 403-6----- Van Dyke----- Merrill-----	856.8 3,670.2 4,987.5	2.932895 3.564694 3.697887
Mon. 404-----	45 31 21.38 70 42 37.56	323 21 42 330 00 03	143 23 03 150 00 11	Van Dyke----- Mon. 404 ecc-----	4,123.4 456.56	3.615257 2.659498
Mon. 406 ecc-----	45 29 16.43 70 43 03.21	187 49 32 259 41 24 299 05 38	7 49 40 79 43 03 119 06 54	Mon. 405----- Van Dyke----- Merrill-----	1,731.5 3,067.1 2,645.2	3.238416 3.486729 3.422459
Mon. 406-----	45 29 16.37 70 43 02.79	100 37 40 259 37 40	280 37 40 79 39 19	Mon. 406 ecc----- Van Dyke-----	9.30 3,058.4	0.968296 3.485498
Mon. 407 ecc-----	45 28 38.07 70 41 50.99	171 57 08 179 44 30 219 54 41	351 56 42 359 44 29 39 55 29	Mon. 403-6----- Wait----- Van Dyke-----	5,557.8 5,727.3 2,258.9	3.744906 3.757948 3.353900
Mon. 407-----	45 28 38.72 70 41 50.82	10 26 11 220 10 11	190 26 11 40 10 59	Mon. 407 ecc----- Van Dyke-----	20.53 2,241.1	1.312389 3.350454
South-----	45 28 24.539 70 40 53.640	185 25 24.7 276 47 22.1 306 35 12.9 323 12 17.7	5 25 31.1 96 49 38.0 126 36 45.7 143 13 35.1	Van Dyke----- Layton----- Bump----- Mon. 410-----	2,159.8 4,170.9 3,522.9 3,944.2	3.334420 3.620225 3.546897 3.595958
Mon. 408 ecc-----	45 28 00.32 70 41 36.63	231 18 26 267 07 08 289 45 22	51 18 56 87 09 54 109 47 25	South----- Layton----- Bump-----	1,196.4 5,081.9 3,998.1	3.077878 3.706027 3.601859
Mon. 408-----	45 28 00.02 70 41 36.25	137 15 28 289 40 28	317 15 28 109 42 31	Mon. 408 ecc----- Bump-----	12.31 3,987.2	1.090258 3.600672
Mon. 409 ecc-----	45 27 24.31 70 40 53.45	251 43 34 274 51 58 298 51 01	71 45 49 94 53 30 118 52 18	Layton----- Bump----- Mon. 410-----	4,357.1 2,834.7 2,692.4	3.639202 3.452510 3.430133

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Mon. 409-----	45 27 24.28 70 40 53.49	218 11 31 274 50 31	38 11 31 94 52 04	Mon. 409 ecc----- Bump-----	1.42 2,835.5	0.153662 3.452630
Mon. 412 ecc-----	45 25 20.75 70 37 40.12	132 20 20 214 53 27 273 29 45	312 19 55 34 54 00 93 33 17	Mon. 411----- Moccasin----- Kibby-----	1,023.3 1,763.6 6,501.5	3.009999 3.246392 3.813014
Mon. 412-----	45 25 21.51 70 37 42.50	273 40 22 294 25 22	93 43 56 114 25 24	Kibby----- Mon. 412 ecc-----	6,554.6 56.83	3.816549 1.754562
Brown-----	45 24 00.768 70 37 25.232	50 39 46.0 161 07 26.3 189 55 36.8 251 25 16.7	230 38 08.9 341 06 50.9 9 55 59.2 71 28 38.7	Saddle----- Mon. 411----- Moccasin----- Kibby-----	3,837.9 3,338.0 3,975.3 6,504.8	3.584098 3.523486 3.599365 3.813236
Rain-----	45 24 10.696 70 35 18.440	83 40 15.4 126 38 20.6 150 09 31.9 242 38 31.4	263 38 45.1 306 36 14.9 330 08 24.0 62 40 23.1	Brown----- Mon. 411----- Moccasin----- Kibby-----	2,774.6 4,780.9 4,161.3 3,838.4	3.443200 3.679507 3.619232 3.584147
Le Roy-----	45 24 57.256 70 34 28.348	37 09 39.8 106 02 42.3 124 30 53.3 262 00 01.1	217 09 04.1 286 00 00.9 304 29 09.7 82 01 17.1	Rain----- Mon. 411----- Moccasin----- Kibby-----	1,803.5 5,124.8 3,834.4 2,342.7	3.256119 3.709676 3.583697 3.369724
Mon. 414 ecc-----	45 24 09.00 70 37 18.95	49 07 45 157 16 28 188 31 26 268 50 38	229 06 03 337 15 48 8 31 44 88 52 04	Saddle----- Mon. 411----- Moccasin----- Rain-----	4,106.2 3,148.8 3,702.5 2,621.5	3.613435 3.498148 3.568494 3.418549
Mon. 414-----	45 24 09.09 70 37 19.27	157 22 09 292 34 09	337 21 29 112 34 09	Mon. 411----- Mon. 414 ecc-----	3,143.6 7.39	3.497423 0.868527
Back-----	45 23 11.214 70 39 43.803	202 23 58.8 243 04 36.4 357 02 40.2	22 25 02.1 63 06 15.1 177 02 41.7	Mon. 411----- Brown----- Saddle-----	5,071.1 3,380.2 904.9	3.705106 3.528947 2.956587
Mon. 413 ecc-----	45 24 36.83 70 38 05.68	30 29 32 38 55 47 282 29 31 321 41 07	210 28 23 218 54 37 102 31 30 141 41 36	Saddle----- Back----- Rain----- Brown-----	4,115.7 3,397.3 3,725.4 1,418.9	3.614441 3.531129 3.571169 3.151938
Mon. 413-----	45 24 37.24 70 38 05.66	1 24 23 30 24 23	181 24 23 210 23 15	Mon. 413 ecc----- Saddle-----	12.66 4,126.8	1.102331 3.615609
Joseph-----	45 23 18.634 70 38 19.772	57 33 31.1 82 51 55.5 222 21 38.9	237 32 32.8 262 50 55.7 42 22 17.8	Saddle----- Back----- Brown-----	2,111.2 1,842.4 1,760.5	3.324521 3.265373 3.245636
Mon. 415 ecc-----	45 22 56.95 70 38 14.78	76 14 18 102 49 12 170 47 09 208 40 31	256 13 16 282 48 09 350 47 06 28 41 07	Saddle----- Back----- Joseph----- Brown-----	1,946.2 1,986.2 678.3 2,245.8	3.289185 3.298025 3.831396 3.351369
Mon. 415-----	45 22 57.57 70 38 13.25	59 59 39 75 55 39	239 59 38 255 54 36	Mon. 415 ecc----- Saddle-----	38.49 1,983.2	1.585348 3.297361
Mon. 416 ecc-----	45 22 41.12 70 38 57.00	91 30 11 132 22 51 214 57 37	271 29 39 312 22 18 34 58 03	Saddle----- Back----- Joseph-----	972.1 1,378.5 1,413.2	2.987703 3.139401 3.150218
Mon. 416-----	45 22 40.90 70 38 56.77	91 53 16 143 09 16	271 52 44 323 09 16	Saddle----- Mon. 416 ecc-----	977.3 8.37	2.990026 0.922570
Mon. 417-----	45 22 42.41 70 39 41.06	42 29 09 230 40 38	222 29 09 50 42 15	Saddle----- Brown-----	19.48 3,818.7	1.289522 3.581913

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.						
	° ' "	° ' "	° ' "			
Mon. 418-----	45 23 11.31 70 39 44.84	277 26 26 355 38 26	97 26 26 175 38 28	Back----- Saddle-----	22.65 909.2	1.354992 2.958674
Mon. 419 ecc-----	45 23 42.13 70 41 05.81	260 23 16 298 08 16 315 25 00	80 25 58 118 09 14 135 26 00	Mon. 414----- Back----- Saddle-----	4,997.2 2,023.1 2,608.3	3.698723 3.306016 3.416363
Mon. 419-----	45 23 41.86 70 41 05.20	121 59 46 315 29 46	301 59 46 135 30 46	Mon. 419 ecc----- Saddle-----	15.48 2,593.3	1.189631 3.413847
Mon. 420 ecc-----	45 23 37.31 70 42 11.85	261 12 24 284 01 52 297 36 07	81 15 52 104 03 37 117 37 54	Mon. 414----- Back----- Saddle-----	6,439.0 3,319.7 3,687.5	3.808817 3.521105 3.566732
Mon. 420-----	45 23 36.98 70 42 11.86	181 34 26 297 27 26	1 34 26 117 29 13	Mon. 420 ecc----- Saddle-----	10.36 3,683.0	1.015234 3.566198
Mon. 421 ecc-----	45 23 42.49 70 43 21.66	225 08 43 240 48 15 264 00 59 291 18 46	45 11 46 60 51 54 84 05 17 111 21 23	Mon. 410----- Mon. 411----- Mon. 414----- Saddle-----	7,870.2 7,638.7 7,924.7 5,138.1	3.895984 3.883019 3.898982 3.710800
Mon. 421-----	45 23 42.07 70 43 21.08	136 11 38 291 13 38	316 11 38 111 16 14	Mon. 421 ecc----- Saddle-----	18.15 5,121.6	1.258901 3.709405
Mon. 422 ecc-----	45 24 25.73 70 44 11.03	126 58 51 237 37 35 252 49 31 298 38 36	306 56 54 57 41 13 72 53 45 118 41 48	Mon. 425----- Mon. 410----- Mon. 411----- Saddle-----	4,468.6 7,876.3 8,102.9 6,678.2	3.650168 3.896323 3.908640 3.824662
Mon. 422-----	45 24 25.87 70 44 11.57	252 52 48 290 52 48	72 57 02 110 52 48	Mon. 411----- Mon. 422 ecc-----	8,112.8 12.59	3.909170 1.100164
Mon. 423 ecc-----	45 25 17.34 70 44 39.33	110 19 26 250 08 33 264 31 53 306 30 33	290 17 49 70 12 32 84 36 27 126 34 05	Mon. 425----- Mon. 410----- Mon. 411----- Saddle-----	3,150.7 7,726.5 8,394.9 8,057.9	3.498404 3.887984 3.924017 3.906224
Mon. 423-----	45 25 16.53 70 44 40.51	225 49 44 264 22 44	45 49 45 84 27 19	Mon. 423 ecc----- Mon. 411-----	35.79 8,422.9	1.553762 3.925461
Mon. 424 ecc-----	45 25 36.82 70 45 55.96	257 13 27 268 50 59 303 30 52	77 18 20 88 56 28 123 35 18	Mon. 410----- Mon. 411----- Saddle-----	9,159.4 10,024.7 9,768.0	3.961865 4.001071 3.989807
Mon. 424-----	45 25 36.07 70 45 58.17	244 19 25 268 43 25	64 19 26 88 48 55	Mon. 424 ecc----- Mon. 411-----	53.25 10,073.2	1.726311 4.003167
Mon. 426 ecc-----	45 25 03.925 70 48 11.585	227 44 11.9 255 37 13.8 332 24 54.7	47 45 06.3 75 43 43.3 152 28 53.9	Mon. 425----- Mon. 410----- Snow-----	2,242.2 12,264.1 15,820.0	3.350683 4.088636 4.199207
Mon. 426-----	45 25 04.352 70 48 12.300	228 15 09.0 310 17 09.0	48 16 03.9 130 17 09.5	Mon. 425----- Mon. 426 ecc-----	2,245.0 20.39	3.351213 1.309417
Moran-----	45 17 38.822 70 50 23.753	111 23 14.7 196 33 06.9 271 33 09.8	291 22 04.7 16 35 35.3 91 38 42.7	Gosford----- Mon. 425----- Snow-----	2,306.0 15,909.7 10,209.5	3.362854 4.201663 4.009004
Mon. 427 ecc-----	45 24 11.531 70 49 18.405	6 41 56.3 224 52 11.7 324 41 55.5	186 41 09.8 44 53 53.7 144 46 42.2	Moran----- Mon. 425----- Snow-----	12,206.7 4,410.9 15,196.6	4.086598 3.644532 4.181746
Mon. 427-----	45 24 11.792 70 49 18.875	225 02 15.4 308 14 15.4	45 03 57.7 128 14 15.7	Mon. 425----- Mon. 427 ecc-----	4,412.5 13.01	3.644682 1.114244



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Mon. 428 ecc-----	45 23 27.680 70 49 28.238	6 24 31.4 83 46 07.2 216 35 18.3 320 50 45.4	186 23 51.9 263 42 19.4 36 37 07.3 140 55 39.1	Moran----- Woburn----- Mon. 425----- Snow-----	10,837.4 7,004.1 5,579.4 14,247.5	4.034926 3.845350 3.746588 4.153740
Mon. 428-----	45 23 29.561 70 49 28.496	216 59 35.4 354 29 15.2	37 01 24.5 174 29 15.3	Mon. 425----- Mon. 428 ecc-----	5,536.3 58.34	3.743217 1.765958
Mine-----	45 20 40.475 70 49 55.118	124 36 26.9 186 27 45.6 202 04 22.8	304 32 58.3 6 28 04.7 22 06 30.9	Woburn----- Mon. 428 ecc----- Mon. 425-----	7,749.0 5,194.9 10,404.8	3.889244 3.715580 4.017232
Dead-----	45 21 03.798 70 48 36.990	67 03 47.0 165 54 41.3	247 02 51.4 345 54 04.8	Mine----- Mon. 428 ecc-----	1,846.9 4,579.7	3.266454 3.660840
Arnold-----	45 22 04.024 70 50 15.628	201 45 34.1 310 53 02.1 350 10 41.4	21 46 07.8 130 54 12.3 170 10 56.0	Mon. 428 ecc----- Dead----- Mine-----	2,780.8 2,840.1 2,617.6	3.444175 3.453329 3.417910
Mon. 429 ecc-----	45 23 02.735 70 48 47.560	46 36 08.2 131 02 05.9 356 24 50.9	226 35 05.5 311 01 36.9 176 24 58.4	Arnold----- Mon. 428 ecc----- Dead-----	2,637.7 1,173.1 3,679.0	3.421220 3.069327 3.565729
Mon. 429-----	45 23 05.039 70 48 48.178	45 17 55.4 128 44 06.9 349 18 11.7	225 16 53.2 308 43 38.4 169 18 12.2	Arnold----- Mon. 428 ecc----- Mon. 429 ecc-----	2,677.5 1,117.2 72.4	3.427723 3.048113 1.859591
Mon. 430 ecc-----	45 22 37.231 70 48 25.067	66 55 53.2 138 34 49.9 148 08 22.6	246 54 34.5 318 34 04.9 328 08 06.6	Arnold----- Mon. 428 ecc----- Mon. 429 ecc-----	2,615.1 2,077.1 927.1	3.417495 3.317462 2.967108
Mon. 430-----	45 22 37.228 70 48 25.507	148 38 49.4 269 32 49.4	328 38 33.7 89 32 49.7	Mon. 429 ecc----- Mon. 430 ecc-----	922.1 9.57	2.964783 0.980912
Mon. 431-----	45 21 54.394 70 48 12.678	96 21 08.2 150 17 12.7 160 13 00.7 192 52 58.8	276 19 40.7 330 16 18.9 340 12 35.9 12 53 54.0	Arnold----- Mon. 428 ecc----- Mon. 429 ecc----- Mon. 425-----	2,692.2 3,316.1 2,242.2 7,549.2	3.430104 3.520632 3.350675 3.877900
Stone-----	45 21 32.937 70 48 42.943	115 27 08.4 164 27 21.6	295 26 02.5 344 26 49.4	Arnold----- Mon. 428 ecc-----	2,233.8 3,676.9	3.349052 3.565477
Mon. 432 ecc-----	45 21 31.337 70 48 36.851	110 26 34.4 115 09 20.0 162 42 48.0 175 16 47.8	290 26 30.0 295 08 09.7 342 42 11.4 355 16 40.2	Stone----- Arnold----- Mon. 428 ecc----- Mon. 429 ecc-----	141.5 2,374.8 3,761.7 2,831.2	2.150680 3.375629 3.575388 3.451977
Mon. 432-----	45 21 31.691 70 48 37.047	106 41 30.0 338 42 30.0	286 41 25.8 158 42 30.2	Stone----- Mon. 432 ecc-----	133.9 11.74	2.126926 1.069782
Mon. 433-----	45 21 07.046 70 48 40.688	63 09 23.9 130 24 56.1 166 35 58.9	243 08 31.0 310 23 48.6 346 35 25.1	Mine----- Arnold----- Mon. 428 ecc-----	1,816.1 2,713.7 4,463.2	3.259140 3.433559 3.649649
River-----	45 20 59.450 70 48 38.642	70 37 23.7 133 22 14.6 194 59 57.3	250 36 29.3 313 21 05.6 14 59 58.5	Mine----- Arnold----- Dead-----	1,764.9 2,903.5 139.0	3.246723 3.462918 2.142928
White-----	45 20 58.035 70 50 03.866	264 36 59.6 268 38 32.6 340 38 27.4	84 38 01.4 88 39 33.2 160 38 33.6	Dead----- River----- Mine-----	1,899.5 1,855.8 574.6	3.278648 3.268520 2.759341
Seymour-----	45 19 22.438 70 51 21.860	20 29 21.4 146 35 31.8 338 24 14.2	200 28 52.7 326 33 04.9 158 24 55.5	Gosford----- Woburn----- Moran-----	2,517.4 8,156.2 3,440.1	3.400951 3.91487 3.536574

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Steep-----	45 19 40.656 70 48 41.898	30 32 50.0 56 14 07.1 296 50 21.6	210 31 37.6 236 11 44.7 116 54 42.2	Moran----- Gosford----- Snow-----	4,366.9 5,252.2 8,950.4	3.640169 3.720344 3.951841
Mon. 434 ecc-----	45 20 48.311 70 48 44.414	81 04 34.7 99 51 14.4 200 04 09.9 358 29 31.3	261 03 44.4 279 50 17.9 20 04 14.0 178 29 33.1	Mine----- White----- River----- Steep-----	1,558.2 1,755.5 366.1 2,089.6	3.192610 3.244402 2.563630 3.320056
Mon. 434-----	45 20 48.787 70 48 45.339	203 53 05.3 306 07 05.3	23 53 10.1 126 07 06.0	River----- Mon. 434 ecc-----	360.0 24.93	2.556340 1.396722
Mon. 435 ecc-----	45 20 24.078 70 49 13.942	40 43 48.9 55 40 25.2 119 27 25.3 124 00 40.3	220 41 49.2 235 38 54.2 299 26 55.9 303 56 42.3	Gosford----- Seymour----- Mine----- Woburn-----	5,621.7 3,373.5 1,029.5 8,774.8	3.749868 3.528076 3.012634 3.943238
Mon. 435-----	45 20 23.830 70 49 13.252	40 53 50.5 117 01 50.5	220 51 50.3 297 01 50.0	Gosford----- Mon. 435 ecc-----	5,625.7 16.87	3.750178 1.227218
Mon. 436 ecc-----	45 19 55.323 70 49 02.837	22 42 21.3 49 13 27.0 71 28 32.5	202 41 23.8 229 11 19.5 251 26 53.7	Moran----- Gosford----- Seymour-----	4,567.8 5,163.4 3,193.3	3.659704 3.712936 3.504233
Mon. 436-----	45 19 54.808 70 49 02.671	49 23 03.1 167 11 03.1	229 20 55.5 347 11 03.0	Gosford----- Mon. 436 ecc-----	5,155.8 16.30	3.712294 1.212188
Mon. 437-----	45 19 40.955 70 48 40.758	69 36 20.9 181 50 13.0	249 36 20.1 1 50 15.7	Steep----- Dead-----	26.49 2,558.8	1.423033 3.408038
Mon. 438 ecc-----	45 19 25.555 70 48 36.700	35 18 00.8 61 17 47.2 88 29 01.3 166 21 08.7	215 16 44.7 241 15 21.1 268 27 03.9 346 21 05.0	Moran----- Gosford----- Seymour----- Steep-----	4,036.8 5,107.2 3,598.3 479.7	3.606037 3.708179 3.556099 2.680987
Mon. 438-----	45 19 27.758 70 48 29.318	61 29 18.4 67 04 18.4	241 26 47.0 247 04 13.1	Gosford----- Mon. 438 ecc-----	5,280.9 174.56	3.722704 2.241945
Mon. 439 ecc-----	45 18 42.470 70 48 32.444	50 59 42.7 76 12 16.4 108 30 18.6 173 27 42.2	230 58 23.6 256 09 47.3 288 28 18.2 353 27 35.5	Moran----- Gosford----- Seymour----- Steep-----	3,121.2 4,708.1 3,890.9 1,808.0	3.494318 3.672847 3.590054 3.257209
Mon. 439-----	45 18 42.492 70 48 32.880	108 32 24.4 274 04 24.4	288 30 24.3 94 04 24.7	Seymour----- Mon. 439 ecc-----	3,881.7 9.52	3.589023 0.978774
Mon. 440 ecc-----	45 18 21.419 70 48 45.272	58 30 25.7 83 42 44.2 281 11 32.7	238 29 15.7 263 40 24.2 101 15 55.6	Moran----- Gosford----- Snow-----	2,516.6 4,318.8 8,216.0	3.400814 3.635362 3.914660
Mon. 440-----	45 18 21.769 70 48 45.230	4 48 03.5 281 16 03.5	184 48 03.5 101 20 26.3	Mon. 440 ecc----- Snow-----	10.85 8,217.2	1.035430 3.914724
Mon. 441 ecc-----	45 17 55.218 70 49 05.878	73 23 51.6 168 08 00.0 189 06 52.0	253 22 56.3 348 07 25.0 9 07 09.1	Moran----- Mine----- Steep-----	1,770.7 5,213.2 3,296.6	3.248156 3.717107 3.518071
Mon. 441-----	45 17 55.419 70 49 06.953	189 32 01.6 284 48 01.6	9 32 19.4 104 48 02.3	Steep----- Mon. 441 ecc-----	3,294.3 24.24	3.517766 1.384533
Mon. 442 ecc-----	45 17 50.592 70 49 35.691	140 48 24.5 144 48 56.8 175 23 21.7	320 47 09.1 324 45 14.5 355 23 07.9	Seymour----- Woburn----- Mine-----	3,659.0 11,802.3 5,261.6	3.563366 4.071965 3.721117
Mon. 442-----	45 17 50.460 70 49 35.691	144 49 38.1 180 08 38.1	324 45 55.8 0 08 38.1	Woburn----- Mon. 442 ecc-----	11,805.6 4.08	4.072088 0.610979

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Boots-----	45 17 11.946 70 52 34.090	202 31 09.4 253 42 10.8	22 31 32.0 73 43 43.4	Gosford----- Moran-----	1,808.2 2,959.0	3.257237 3.471138
Dutch-----	45 16 01.528 70 50 30.430	128 53 57.6 152 29 43.5 182 46 23.6	308 52 29.7 332 28 38.2 2 46 28.3	Boots----- Gosford----- Moran-----	3,462.8 4,334.4 3,007.1	3.539427 3.636926 3.478151
Boggy-----	45 14 32.864 70 53 48.285	198 13 23.2 237 35 15.5	18 14 15.9 57 37 36.1	Boots----- Dutch-----	5,170.6 5,109.3	3.713541 3.708363
Mon. 450-----	45 14 14.620 70 50 13.962	96 53 29.3 150 50 54.5 173 47 30.3	276 50 57.0 330 49 14.9 353 47 18.6	Boggy----- Boots----- Dutch-----	4,708.4 6,269.1 3,319.9	3.672874 3.797206 3.521122
Suptic-----	45 13 36.234 70 51 47.968	123 40 49.2 200 38 54.8 239 58 07.8	303 39 23.8 20 39 49.9 59 59 14.6	Boggy----- Dutch----- Mon. 450-----	3,153.4 4,793.5 2,368.4	3.498784 3.680657 3.374457
Dennison-----	45 15 12.320 70 50 49.534	23 15 25.4 72 39 55.2 195 19 53.4	203 14 43.9 252 37 48.3 15 20 07.0	Suptic----- Boggy----- Dutch-----	3,228.5 4,084.0 1,575.2	3.508999 3.611091 3.197333
Smith-----	45 16 51.626 70 55 19.316	241 49 34.2 260 06 06.0 335 07 56.1	61 51 54.2 80 08 03.4 155 09 00.8	Gosford----- Boots----- Boggy-----	4,869.3 3,655.2 4,721.2	3.687463 3.562910 3.674052
Boulder-----	45 14 54.458 70 51 57.834	74 32 29.8 249 40 38.0 298 29 10.7 354 54 23.1	254 31 11.4 69 41 26.5 118 30 24.5 174 54 30.1	Boggy----- Dennison----- Mon. 450----- Suptic-----	2,499.3 1,588.2 2,577.8 2,424.4	3.397825 3.200907 3.411241 3.384608
Mon. 443 ecc-----	45 17 38.553 70 50 09.838	8 31 25.7 91 34 11.8 271 33 18.1	188 31 11.1 271 34 01.9 91 38 41.1	Dutch----- Moran----- Snow-----	3,028.7 303.3 9,906.2	3.481261 2.481912 3.995905
Mon. 443-----	45 17 38.112 70 50 10.053	94 12 02.9 198 59 02.9	274 11 53.2 18 59 03.1	Moran----- Mon. 443 ecc-----	299.3 14.40	2.476156 1.158362
Mon. 444 ecc-----	45 17 06.367 70 49 53.493	92 49 59.7 146 39 06.1 265 39 41.0	272 48 05.6 326 38 44.6 85 44 52.4	Boots----- Moran----- Snow-----	3,504.2 1,199.5 9,573.8	3.544587 3.078989 3.981083
Mon. 444-----	45 17 06.357 70 49 53.230	93 09 25.1 265 39 25.1	273 09 24.9 85 44 36.3	Mon. 444 ecc----- Snow-----	5.74 9,568.1	0.758912 3.980825
Mon. 445 ecc-----	45 16 06.850 70 50 25.634	125 40 51.8 150 13 01.9 180 49 36.7	305 39 20.5 330 11 53.2 0 49 38.0	Boots----- Gosford----- Moran-----	3,446.4 4,240.3 2,839.6	3.537369 3.627393 3.453254
Mon. 445-----	45 16 06.881 70 50 25.508	70 51 43.5 150 10 43.5	250 51 43.4 330 09 34.7	Mon. 445 ecc----- Gosford-----	2.90 4,240.8	0.462098 3.627448
Mon. 446 ecc-----	45 15 52.837 70 50 48.918	136 49 18.4 158 45 18.6 189 30 50.3 236 20 57.3	316 48 03.7 338 44 26.5 9 31 08.2 56 21 10.5	Boots----- Gosford----- Moran----- Dutch-----	3,349.6 4,412.5 3,317.5 484.2	3.524989 3.644687 3.520816 2.685010
Mon. 446-----	45 15 52.746 70 50 48.873	158 45 24.0 160 57 24.0 236 00 34.1	338 44 31.9 340 57 24.0 56 00 47.2	Gosford----- Mon. 446 ecc----- Dutch-----	4,415.5 2.96 484.9	3.644983 0.470998 2.685691
Mon. 447 ecc-----	45 15 17.191 70 50 56.519	19 48 21.9 189 16 27.5 202 33 52.2 314 37 59.0	199 47 45.3 9 16 50.7 22 34 10.7 134 38 03.9	Suptic----- Moran----- Dutch----- Dennison-----	3,312.5 4,430.3 1,482.2 214.0	3.520157 3.646432 3.170916 2.330500



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Mon. 447	45 15 17.093 70 50 56.725	202 40 47.5 236 10 47.5	22 41 06.2 56 10 47.7	Dutch Mon. 447 ecc	1,486.7 5.41	3.172234 0.733197
Mon. 448 ecc	45 14 48.503 70 50 57.209	26 23 54.3 82 38 38.1 97 55 20.3	206 23 18.3 262 36 36.7 277 54 37.3	Suptic Boggy Boulder	2,490.6 3,762.1 1,334.8	3.396308 3.575434 3.125430
Mon. 448	45 14 48.903 70 50 57.363	318 11 12.2 344 48 12.2	138 11 43.1 164 48 12.3	Mon. 450 Mon. 448 ecc	1,419.9 12.79	3.152259 1.106837
Mon. 449 ecc	45 14 27.085 70 50 38.440	92 29 08.9 116 01 17.0 170 10 19.6	272 26 54.1 296 00 20.6 350 10 11.7	Boggy Boulder Dennison	4,144.4 1,926.7 1,417.3	3.617463 3.284817 3.151447
Mon. 449	45 14 26.984 70 50 39.101	170 46 02.0 257 46 02.0	350 45 54.6 77 46 02.5	Dennison Mon. 449 ecc	1,417.9 14.74	3.151660 1.168615
Mon. 451 ecc	45 13 56.304 70 51 07.172	107 49 17.6 148 23 35.3 189 18 27.7 191 42 21.5	287 47 23.2 328 22 59.3 9 18 40.2 11 42 47.6	Boggy Boulder Dennison Dutch	3,691.0 2,108.1 2,378.0 3,948.0	3.567141 3.323889 3.376218 3.596376
Mon. 451	45 13 55.903 70 51 07.378	148 40 19.9 199 54 19.9	328 39 44.0 19 54 20.0	Boulder Mon. 451 ecc	2,116.3 13.17	3.325579 1.119586
Mon. 452 ecc	45 14 03.363 70 52 32.141	118 44 45.4 205 22 28.9 226 25 12.7 263 24 35.2	298 43 51.4 25 22 53.3 46 26 25.6 83 26 13.4	Boggy Boulder Dennison Mon. 450	1,894.1 1,745.8 3,088.6 3,034.0	3.277410 3.242000 3.489760 3.482017
Mon. 452	45 14 03.234 70 52 31.556	107 18 23.7 204 56 23.7	287 18 23.3 24 56 47.7	Mon. 452 ecc Boulder	13.37 1,744.0	1.126131 3.241546
Mon. 453 ecc	45 14 05.314 70 53 04.386	223 43 38.3 234 51 59.2 265 33 51.5 298 17 44.1	43 44 25.5 54 53 34.9 85 35 52.5 118 18 38.3	Boulder Dennison Mon. 450 Suptic	2,099.7 3,595.6 3,728.5 1,893.4	3.322150 3.555777 3.571529 3.277238
Mon. 453	45 14 05.808 70 53 05.601	265 49 38.0 299 53 38.0	85 51 39.9 119 53 38.9	Mon. 450 Mon. 453 ecc	3,753.7 30.57	3.574464 1.485324
Mon. 454 ecc	45 14 19.704 70 53 24.279	240 20 55.4 244 16 58.7 302 33 32.4	60 21 56.8 64 18 48.6 122 34 40.8	Boulder Dennison Suptic	2,169.2 3,745.3 2,492.9	3.336306 3.573491 3.396712
Mon. 454	45 14 19.896 70 53 24.519	240 33 09.7 318 31 09.7	60 34 11.3 138 31 09.9	Boulder Mon. 454 ecc	2,170.9 7.90	3.336632 0.897517
Mon. 455 ecc	45 14 27.473 70 53 44.734	155 02 49.3 235 33 27.8 250 03 52.8 250 19 36.1	335 02 46.8 55 35 45.8 70 05 57.2 70 20 52.0	Boggy Dutch Dennison Boulder	183.6 5,136.4 4,063.9 2,475.8	2.263768 3.710656 3.608943 3.393708
Mon. 455	45 14 27.195 70 53 45.535	243 49 05.3 250 02 05.3	63 49 05.9 70 04 10.3	Mon. 455 ecc Dennison	19.45 4,083.2	1.289009 3.611005
Louis	45 17 12.546 70 52 45.484	79 06 42.1 209 39 47.7	259 04 52.8 29 40 18.4	Smith Gosford	3,414.3 1,900.9	3.533297 3.278963
McLeod	45 17 36.287 70 53 23.871	61 17 16.0 242 39 13.0 311 13 08.9	241 15 54.0 62 40 11.0 131 13 36.2	Smith Gosford Louis	2,868.9 2,000.7 1,112.2	3.457713 3.301185 3.046175
Jule	45 18 11.107 70 52 20.544	57 48 45.3 114 34 08.1	237 46 38.3 294 28 12.7	Smith Mon. 470	4,604.0 11,965.3	3.663131 4.077922

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Nicollet	45 18 48.550 70 59 23.347	25 35 10.3 156 14 04.6 217 17 55.3 277 06 40.5 277 43 56.4	205 32 00.4 336 13 09.8 37 21 10.9 97 11 41.0 97 49 09.9	Rump Mon. 470 Woburn Jule Gosford	13,509.4 4,162.9 9,875.7 9,282.9 9,697.3	4.130635 3.619401 3.994567 3.967685 3.986651
Bowman	45 17 07.089 71 03 14.487	4 59 03.4 54 28 02.8 105 28 59.5 238 05 50.5	184 58 37.7 234 24 32.7 285 26 48.8 58 08 34.8	Rump Salmon Bon Durban Nicollet	9,089.4 7,925.8 4,157.1 5,930.7	3.958533 3.899043 3.618788 3.773107
Barker	45 18 21.618 71 02 04.139	33 40 45.5 256 37 52.1	213 39 55.5 76 39 46.4	Bowman Nicollet	2,764.7 3,600.1	3.441643 3.556309
Lake	45 17 40.790 71 00 33.689	73 28 44.4 122 36 39.1 216 13 11.9	253 26 50.1 302 35 34.8 36 14 01.9	Bowman Barker Nicollet	3,655.3 2,339.3 2,593.1	3.562918 3.369085 3.413826
Marble	45 19 59.460 71 00 49.137	28 24 47.3 186 41 10.0 286 45 06.6 319 30 36.2 355 30 14.7	208 23 54.0 6 41 16.2 106 51 08.1 139 31 37.2 175 30 25.7	Barker Mon. 470 Jule Nicollet Lake	3,434.0 1,631.7 11,571.7 2,878.0 4,294.1	3.535795 3.212652 4.063397 3.459096 3.632875
Mon. 456 ecc	45 15 03.032 70 53 48.336	149 23 55.1 265 46 35.7 276 15 27.7 315 34 22.5	329 22 50.4 85 48 42.7 96 16 46.2 135 35 48.0	Smith Dennison Boulder Suptic	3,895.2 3,909.5 2,424.2 3,751.4	3.590533 3.592126 3.384575 3.574190
Mon. 456	45 15 02.836 70 53 47.900	122 25 39.9 265 40 39.9	302 25 39.6 85 42 46.6	Mon. 456 ecc Dennison	11.28 3,900.5	1.052232 3.591120
Mon. 457 ecc	45 15 31.203 70 53 57.538	190 45 25.2 206 39 05.2 258 16 01.1 293 28 40.6	10 45 49.1 26 39 56.4 78 18 28.3 113 30 05.7	McLeod Louis Dutch Boulder	3,930.6 3,500.7 4,611.4 2,846.1	3.594458 3.544155 3.663835 3.454247
Mon. 457	45 15 30.567 70 53 56.955	147 03 21.2 190 31 21.2	327 03 20.8 10 31 44.7	Mon. 457 ecc McLeod	23.39 3,947.5	1.369049 3.596326
Mon. 458 ecc	45 15 52.652 70 54 22.470	201 45 24.0 220 35 27.9 266 52 36.7 299 39 14.4	21 46 05.6 40 36 36.8 86 55 21.6 119 40 57.2	McLeod Louis Dutch Boulder	3,444.8 3,248.4 5,066.1 3,629.5	3.537170 3.511674 3.704676 3.559851
Mon. 458	45 15 52.127 70 54 22.952	201 49 07.1 212 57 07.1	21 49 49.1 32 57 07.5	McLeod Mon. 458 ecc	3,463.8 19.33	3.539554 1.286187
Mon. 459 ecc	45 16 10.391 70 54 31.778	209 09 39.6 222 21 39.0 230 21 28.4	29 10 27.8 42 23 25.2 50 22 43.9	McLeod Gosford Louis	3,036.8 4,833.2 3,008.2	3.482414 3.684239 3.478310
Mon. 459	45 16 10.222 70 54 32.373	222 25 57.1 248 05 57.1	42 27 43.7 68 05 57.5	Gosford Mon. 459 ecc	4,845.9 13.98	3.685370 1.145600
Mon. 460 ecc	45 16 30.706 70 54 57.062	225 04 53.8 232 17 00.4 245 44 24.5	45 06 00.0 52 19 04.6 65 45 58.0	McLeod Gosford Louis	2,867.7 4,813.2 3,145.2	3.457536 3.682437 3.497652
Mon. 460	45 16 30.473 70 54 57.233	207 21 56.9 225 01 56.9	27 21 57.0 45 03 03.2	Mon. 460 ecc McLeod	8.10 2,875.4	0.908485 3.458703
Mon. 461 ecc	45 17 17.604 70 55 06.447	255 31 17.9 272 53 45.9 341 28 06.1	75 32 30.8 92 55 26.1 161 29 01.7	McLeod Louis Boggy	2,308.5 3,075.9 5,363.6	3.363327 3.487977 3.729459

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
Mon. 461-----	45 17 17.513 70 55 06.016	106 43 08.5 272 51 08.5	286 43 08.2 92 52 48.4	Mon. 461 ecc----- Louis-----	9.81 3,066.4	0.991890 3.486629
Mon. 462 ecc-----	45 17 34.607 70 54 51.051	24 54 16.7 268 25 38.4 283 57 50.1	204 53 56.6 88 26 40.3 103 59 19.3	Smith----- McLeod----- Louis-----	1,462.9 1,900.4 2,819.8	3.165207 3.278847 3.450222
Mon. 462-----	45 17 35.218 70 54 51.190	268 59 51.6 350 51 51.6	89 00 53.6 170 51 51.7	McLeod----- Mon. 462 ecc-----	1,903.0 19.11	3.279442 1.281261
Mon. 463 ecc-----	45 18 11.053 70 55 02.445	8 31 42.3 296 32 31.3 301 10 10.1	188 31 30.3 116 33 41.3 121 11 47.4	Smith----- McLeod----- Louis-----	2,479.4 2,401.0 3,488.4	3.394350 3.380396 3.542623
Mon. 463-----	45 18 10.773 70 55 02.764	218 50 21.9 272 06 21.9	38 50 22.1 92 08 30.1	Mon. 463 ecc----- Gosford-----	11.10 3,934.4	1.045323 3.594879
Mon. 464 ecc-----	45 18 51.259 70 55 24.454	89 06 10.7 185 47 04.4 287 10 22.9	269 03 20.9 5 47 30.1 107 12 33.6	Nicollet----- Woburn----- Jule-----	5,204.4 7,809.3 4,193.8	3.716370 3.892614 3.622607
Mon. 464-----	45 18 50.959 70 55 25.474	185 56 21.8 247 22 21.8	5 56 48.2 67 22 22.5	Woburn----- Mon. 464 ecc-----	7,820.8 24.06	3.893252 1.381260
Landon-----	45 19 01.550 70 55 47.331	189 46 55.3 225 05 15.3 289 02 58.6	9 47 37.3 45 09 45.0 109 05 25.6	Woburn----- Mon. 428 ecc----- Jule-----	7,561.9 11,644.5 4,766.2	3.878629 4.066119 3.678174
Mon. 465 ecc-----	45 19 09.974 70 56 02.656	192 40 48.7 227 08 24.4 307 55 16.4	12 41 41.6 47 13 05.0 127 55 27.3	Woburn----- Mon. 428 ecc----- Landon-----	7,371.7 11,704.7 423.1	3.867570 4.068362 2.626478
Mon. 465-----	45 19 09.784 70 56 03.261	246 04 35.4 306 13 35.4	66 04 35.8 126 13 46.7	Mon. 465 ecc----- Landon-----	14.43 430.1	1.159176 2.633600
Fish-----	45 20 37.489 71 00 07.090	37 57 06.9 121 37 29.5 344 10 51.6	217 56 37.0 301 37 05.8 164 11 22.7	Marble----- Mon. 470----- Nicollet-----	1,488.8 851.9 3,495.4	3.172827 2.930377 3.543495
Mon. 466 ecc-----	45 20 04.962 70 57 05.648	51 49 29.5 104 16 45.5 237 47 56.8	231 47 51.6 284 14 36.5 57 53 22.2	Nicollet----- Fish----- Mon. 428 ecc-----	3,815.5 4,076.1 11,758.8	3.581550 3.610247 4.070364
Mon. 466-----	45 20 05.592 70 57 05.405	15 13 56.4 237 51 56.4	195 13 56.2 57 57 21.6	Mon. 466 ecc----- Mon. 428 ecc-----	20.15 11,744.0	1.304232 4.069816
Charlie-----	45 23 21.857 70 59 50.155	13 18 04.9 313 42 03.9 356 02 27.1	193 17 29.2 133 47 36.7 176 02 46.2	Mon. 470----- Gosford----- Nicollet-----	4,755.2 14,099.4 8,457.6	3.677166 4.149201 3.927246
Mon. 467 ecc-----	45 20 16.339 70 57 31.288	83 07 22.9 100 54 37.9 152 11 36.0	263 05 02.2 280 52 47.1 332 09 57.2	Marble----- Fish----- Charlie-----	4,339.5 3,454.5 6,475.8	3.637435 3.538379 3.811293
Mon. 467-----	45 20 16.297 70 57 32.493	152 24 15.1 267 11 15.1	332 22 37.2 87 11 16.0	Charlie----- Mon. 467 ecc-----	6,464.7 26.28	3.810550 1.419625
Mon. 468 ecc-----	45 19 56.641 70 58 46.928	20 40 36.9 55 41 20.3 125 51 22.3 167 45 05.2	200 40 11.0 235 39 00.1 305 50 25.3 347 44 20.2	Nicollet----- Barker----- Fish----- Charlie-----	2,246.7 5,201.5 2,153.3 6,483.1	3.351544 3.716126 3.333101 3.811785
Mon. 468-----	45 19 56.832 70 58 47.496	20 19 42.7 295 29 42.7	200 19 17.2 115 29 43.1	Nicollet----- Mon. 468 ecc-----	2,247.9 13.71	3.351774 1.137101
Neil-----	45 20 35.215 71 00 03.051	128 36 33.2	308 36 30.3	Fish-----	112.52	2.051230



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.						
	° ' "	° ' "	° ' "			
Mon. 469 ecc-----	45 20 17.671 70 59 29.565	43 14 00.7 72 01 50.0 126 49 50.2 230 09 58.1	223 12 10.8 252 00 53.4 306 49 23.5 50 13 18.2	Barker----- Marble----- Fish----- Woburn-----	4,916.3 1,821.6 1,020.7 7,969.3	3.691634 3.260444 3.008888 3.901419
Mon. 469-----	45 20 17.792 70 59 30.124	126 52 57.0 286 59 57.0	306 52 33.6 106 59 57.4	Neil----- Mon. 469 ecc-----	896.2 12.73	2.952422 1.104828
Cooke-----	45 19 54.092 71 00 35.655	34 01 54.3 322 05 55.8 359 24 13.6	214 00 51.4 142 06 47.2 179 24 15.0	Barker----- Nicollet----- Lake-----	3,444.4 2,564.0 4,115.4	3.537119 3.408916 3.614415
Mon. 471 ecc-----	45 19 49.342 71 00 16.458	40 54 17.1 63 42 34.3 109 19 52.3 328 20 49.3	220 53 00.6 243 38 17.1 289 19 38.7 148 21 27.1	Barker----- Bon Durban----- Cooke----- Nicollet-----	3,582.6 8,795.2 443.0 2,204.6	3.554199 3.944245 2.646405 3.343325
Mon. 471-----	45 19 49.728 71 00 16.501	328 29 16.9 355 29 16.9	148 29 54.7 175 29 16.9	Nicollet----- Mon. 471 ecc-----	2,215.2 11.95	3.345416 1.077368
Hugh-----	45 18 44.240 70 59 41.223	30 16 17.7 77 22 16.1 147 30 38.8	210 15 40.4 257 20 34.5 327 29 50.5	Lake----- Barker----- Marble-----	2,267.9 3,190.7 2,753.2	3.355627 3.503890 3.439839
Mon. 472 ecc-----	45 19 01.338 71 00 50.189	180 43 54.9 289 21 07.8 351 46 20.8	0 43 55.6 109 21 56.8 171 46 32.5	Marble----- Hugh----- Lake-----	1,794.5 1,592.3 2,512.5	3.253934 3.202025 3.400098
Mon. 472-----	45 19 01.027 71 00 50.511	180 57 00.9 216 07 00.9	0 57 01.8 36 07 01.1	Marble----- Mon. 472 ecc-----	1,804.2 11.88	3.256274 1.074670
Campbell-----	45 18 15.553 71 05 43.179	243 21 58.8 267 43 52.6 303 06 11.7	63 25 27.8 87 46 28.3 123 07 57.4	Marble----- Barker----- Bowman-----	7,162.9 4,775.7 3,868.4	3.855087 3.679034 3.587534
Art-----	45 20 50.824 71 00 42.101	21 12 28.2 25 40 55.2 53 51 38.9 358 12 37.9	201 11 29.9 205 39 07.0 233 48 04.8 178 12 44.0	Barker----- Bowman----- Campbell----- Lake-----	4,940.6 7,663.2 8,122.2 5,869.5	3.693776 3.884409 3.909673 3.768599
Mon. 473 ecc-----	45 18 53.835 71 01 33.910	33 30 37.9 197 20 34.4 205 41 52.4 329 48 09.7	213 30 16.4 17 21 11.1 25 42 24.2 149 48 52.5	Barker----- Art----- Marble----- Lake-----	1,192.8 3,783.7 2,248.4 2,608.9	3.076577 3.577920 3.351869 3.416457
Mon. 473-----	45 18 54.887 71 01 33.504	15 13 28.8 330 19 28.8	195 13 28.5 150 20 11.3	Mon. 473 ecc----- Lake-----	33.67 2,632.6	1.527179 3.420390
Mon. 474 ecc-----	45 18 44.401 71 03 21.361	221 36 32.0 235 02 02.9 292 40 54.7 357 08 42.1	41 38 25.1 55 03 51.1 112 41 49.6 177 08 47.0	Art----- Marble----- Barker----- Bowman-----	5,221.1 4,044.8 1,823.3 3,007.9	3.717766 3.606900 3.260870 3.478261
Mon. 474-----	45 18 44.958 71 03 20.140	57 05 41.0 293 30 41.0	237 05 40.1 113 31 35.0	Mon. 474 ecc----- Barker-----	31.68 1,805.6	1.500730 3.256630
Mon. 475 ecc-----	45 18 19.770 71 05 05.141	81 04 34.5 281 28 25.1 312 55 46.9 351 48 50.9	261 04 07.5 101 31 38.1 132 57 05.6 171 49 43.8	Campbell----- Lake----- Bowman----- Rump-----	838.9 6,035.6 3,293.6 11,414.9	2.923686 3.780717 3.517673 4.057471
Mon. 475 (Maine-New Hampshire boundary).	45 18 19.999 71 05 04.399	66 22 58.8 351 53 58.8	246 22 58.3 171 54 51.2	Mon. 475 ecc----- Rump-----	17.66 11,419.6	1.246917 4.057650

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
POINTS SUPPLEMEN- TARY TO MAJOR SCHEME TRIANGU- LATION—contd.						
	° ' "	° ' "	° ' "			
Mon. 476 ecc-----	45 18 17.599 71 05 22.417	82 03 16.1 232 12 05.5 307 58 20.8	262 03 01.3 52 15 24.7 127 59 51.7	Campbell----- Art----- Bowman-----	456.7 7,722.9 3,536.8	2.659647 3.887780 3.548605
Mon. 476-----	45 18 17.524 71 05 23.560	81 54 03.3 264 42 03.3	261 53 49.3 84 42 04.1	Campbell----- Mon. 476 ecc-----	431.7 25.02	2.635207 1.398322
Trumbull-----	45 16 13.702 71 07 00.576	27 09 24.6 114 23 55.2 198 27 35.0 251 29 07.7	207 08 35.1 294 19 36.7 18 28 05.0 71 31 48.4	Salmon----- Northwest Knoll-- Bon Durban----- Bowman-----	3,328.1 8,700.7 2,906.2 5,196.2	3.522194 3.939554 3.463326 3.715688
Peterie-----	45 16 08.579 71 09 27.632	71 32 20.0 267 09 39.6 328 56 25.0	251 29 33.5 87 11 24.1 148 57 20.0	Pros----- Trumbull----- Salmon-----	5,391.3 3,209.7 3,272.1	3.731694 3.506458 3.514829
Southeast Knoll---	45 16 55.479 71 11 49.038	32 44 54.1 144 31 20.2 295 08 51.1	212 43 47.9 324 30 26.7 115 10 31.4	Pros----- Northwest Knoll-- Peterie-----	3,753.4 2,823.9 3,405.4	3.574427 3.450853 3.532168
Bluff-----	45 17 23.029 71 06 25.005	19 54 58.8 60 00 56.9 83 09 53.0	199 54 33.5 239 58 47.1 263 06 02.9	Trumbull----- Peterie----- Southeast Knoll---	2,276.3 4,596.4 7,112.8	3.357226 3.662417 3.852040
Round Top-----	45 17 12.806 71 07 52.504	4 37 01.2 260 35 38.2 328 10 58.1	184 36 48.6 80 36 40.4 148 11 35.0	Salmon----- Bluff----- Trumbull-----	4,801.6 1,932.7 2,147.1	3.681382 3.286175 3.331861
Tallman-----	45 17 06.612 71 07 03.312	17 37 16.1 100 07 04.6 238 44 05.3	197 36 28.5 280 06 29.6 58 44 32.5	Salmon----- Round Top----- Bluff-----	4,820.8 1,089.0 976.6	3.683119 3.037021 2.989715
Birches-----	45 15 10.434 71 09 37.141	222 35 48.3 240 12 25.1 298 00 02.7	42 38 09.5 60 14 16.3 118 01 04.4	Bon Durban----- Trumbull----- Salmon-----	6,400.0 3,932.8 2,146.9	3.806178 3.594703 3.331807
Nash-----	45 15 39.353 71 07 21.184	73 15 11.7 108 08 05.3 111 57 02.6	253 13 35.2 288 06 35.5 291 53 52.5	Birches----- Peterie----- Southeast Knoll---	3,096.0 2,900.6 6,294.1	3.490798 3.462493 3.798935
Mon. 477 ecc-----	45 17 10.262 71 06 33.758	80 04 52.7 92 37 43.5 205 49 29.0	260 04 31.7 272 36 47.5 25 49 35.2	Tallman----- Round Top----- Bluff-----	653.8 1,717.9 437.9	2.815477 2.235000 2.641348
Mon. 477-----	45 17 10.339 71 06 34.601	79 35 01.8 277 26 01.8	259 34 41.4 97 26 02.4	Tallman----- Mon. 477 ecc-----	636.2 18.51	2.803595 1.267500
Mon. 478 ecc-----	45 15 34.071 71 07 22.676	111 22 12.0 113 25 49.4 191 17 11.5	291 20 43.2 293 22 40.3 11 17 12.5	Peterie----- Southeast Knoll-- Nash-----	2,925.1 6,327.0 166.3	3.466145 3.801198 2.220837
Mon. 478-----	45 15 34.495 71 07 22.466	19 17 18.8 113 18 18.8	199 17 18.6 293 15 09.5	Mon. 478 ecc----- Southeast Knoll---	13.86 6,326.0	1.141826 3.801130
Mon. 482-----	45 14 24.085 71 10 50.421	209 13 27.3 235 56 59.5 263 05 13.8	29 14 26.0 55 59 42.7 83 07 07.5	Peterie----- Trumbull----- Salmon-----	3,696.6 6,047.3 3,519.4	3.567805 3.781561 3.546465
Mon. 481-----	45 15 01.559 71 09 46.454	50 20 19.3 94 23 39.6 142 46 51.8 289 16 28.3	230 19 33.9 274 21 06.4 322 45 24.8 109 17 36.6	Mon. 482----- Pros----- Southeast Knoll-- Salmon-----	1,812.3 4,717.3 4,417.0 2,223.3	3.258239 3.673694 3.645131 3.346999
Mon. 480-----	45 14 36.614 71 08 59.897	80 53 41.3 127 10 59.7 142 07 22.1	260 52 22.8 307 10 26.6 322 06 55.6	Mon. 482----- Mon. 481----- Birches-----	2,441.4 1,274.3 1,322.7	3.387638 3.105276 3.121475

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.						
	° ' "	° ' "	° ' "			
Mon. 479 ecc-----	45 14 28.349 71 08 47.694	128 40 03.4 140 18 44.5 164 17 05.9 250 23 41.7	308 39 21.7 320 18 09.4 344 16 37.5 70 24 08.3	Mon. 481----- Birches----- Peterie----- Salmon-----	1,641.1 1,688.4 3,214.4 867.5	3.215145 3.227482 3.507106 2.938245
Mon. 479-----	45 14 28.680 71 08 46.869	60 24 46.8 302 46 16.8	240 24 46.2 122 49 47.1	Mon. 479 ecc----- Rump-----	20.71 7,688.1	1.316138 3.885819
Deer-----	45 12 24.699 71 13 39.173	80 22 55.3 174 28 04.5 184 04 51.7 271 26 48.8	260 20 48.8 354 27 48.7 4 05 03.8 91 33 46.5	Indian----- Spect----- Pros----- Rump-----	3,946.6 5,039.8 5,215.3 12,848.1	3.596223 3.702416 3.717282 4.108838
Mon. 483 ecc-----	45 15 06.695 71 11 39.365	27 36 15.8 176 24 28.7 236 21 25.9	207 34 50.8 356 24 21.9 56 22 59.4	Deer----- Southeast Knoll-- Peterie-----	5,642.7 3,364.9 3,449.5	3.751490 3.526976 3.537760
Mon. 483-----	45 15 10.547 71 11 45.713	25 48 42.2 310 39 29.2	205 47 21.7 130 39 33.7	Deer----- Mon. 483 ecc-----	5,686.7 182.49	3.754864 2.261239
Mon. 484 ecc-----	45 15 19.065 71 12 22.717	170 15 51.8 193 51 12.9	350 15 22.2 13 51 36.8	Northwest Knoll-- Southeast Knoll--	5,353.0 3,065.6	3.728595 3.486517
Mon. 484-----	45 15 10.423 71 12 19.501	165 16 22.2	345 16 19.9	Mon. 484 ecc-----	275.85	2.440673
Hen-----	45 17 08.457 71 14 53.330	120 31 29.9 330 48 00.2 343 11 08.6	300 29 54.5 150 49 05.0 163 11 45.5	Bien----- Pros----- Spect-----	3,396.8 4,075.4 3,910.6	3.531074 3.610166 3.592248
Mon. 485 ecc-----	45 15 42.530 71 14 23.467	87 05 12.4 166 12 53.9 304 05 36.7 336 14 57.1	267 00 11.2 346 12 32.6 124 06 20.2 156 15 12.7	Howe----- Hen----- Pros----- Spect-----	9,254.8 2,731.3 1,614.5 1,191.8	3.966369 3.436377 3.208039 3.076213
Mon. 485-----	45 15 42.474 71 14 23.939	260 28 50.1 303 50 20.1	80 28 50.4 123 51 03.9	Mon. 485 ecc----- Pros-----	10.45 1,622.1	1.018950 3.210073
Mon. 486 ecc-----	45 16 05.672 71 14 42.894	173 18 24.9 312 36 21.6 333 24 33.0	353 18 17.4 132 37 18.9 153 25 02.4	Hen----- Pros----- Spect-----	1,951.5 2,392.1 2,018.8	3.290376 3.378772 3.305091
Mon. 486-----	45 16 05.786 71 14 43.756	280 35 45.3 312 21 52.3	100 35 45.9 132 22 50.2	Mon. 486 ecc----- Pros-----	19.13 2,408.3	1.281828 3.381712
Fourth-----	45 16 46.235 71 19 56.133	39 09 04.0 236 41 54.1 333 35 35.5	219 07 59.2 56 43 53.9 153 37 56.6	Howe----- Bien----- Indian-----	3,150.8 4,392.6 9,750.3	3.498422 3.642720 3.989019
Nob-----	45 16 49.891 71 16 27.885	68 38 40.1 88 35 45.2 159 21 06.6	248 35 07.3 268 33 17.2 339 20 38.4	Howe----- Fourth----- Bien-----	7,011.4 4,540.3 2,455.6	3.845805 3.657083 3.390154
Mon. 487 ecc-----	45 17 09.263 71 15 54.104	50 55 01.0 136 41 59.2 271 04 15.1 317 13 44.7	230 54 37.0 316 41 07.0 91 04 58.3 137 15 32.7	Nob----- Bien----- Hen----- Pros-----	948.6 2,335.8 1,324.7 4,879.4	2.977064 3.368436 3.122120 3.688363
Mon. 487-----	45 17 12.121 71 15 53.804	4 14 14.3 47 16 05.3	184 14 14.1 227 15 41.1	Mon. 487 ecc----- Nob-----	88.47 1,011.3	1.946772 3.004881
Mon. 488 ecc-----	45 17 45.482 71 16 19.906	5 47 12.3 119 13 28.9	185 47 06.6 299 12 55.0	Nob----- Bien-----	1,725.0 1,191.4	3.236780 3.076064
Mon. 488-----	45 17 47.931 71 16 23.832	311 28 11.1	131 28 13.9	Mon. 488 ecc-----	114.17	2.057548



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
POINTS SUPPLEMEN- TARY TO MAJOR SCHEME TRIANGU- LATION—contd.	° ' "	° ' "	° ' "			
Mon. 489 ecc-----	45 18 00.042 71 17 01.409	134 16 25.3 317 07 08.7 323 39 45.6 341 21 21.9	314 16 20.9 137 09 44.5 143 41 53.5 161 21 45.7	Bien----- Pros----- Spect----- Nob-----	189.3 7,026.0 6,622.6 2,285.6	2.277054 3.846711 3.821031 3.358992
Mon. 489-----	45 17 59.306 71 17 00.190	130 32 27.0 133 41 31.0	310 32 26.1 313 41 25.7	Mon. 489 ecc----- Bien-----	34.97 224.2	1.543733 2.350573
Mon. 490 ecc-----	45 17 49.558 71 17 57.685	247 18 51.7 308 45 35.4 314 12 17.3 330 38 02.4	67 19 27.2 128 48 51.1 134 15 05.1 150 41 05.9	Bien----- Pros----- Spect----- Deer-----	1,182.0 7,705.0 7,186.0 11,504.5	3.072627 3.886773 3.856490 4.060867
Mon. 490-----	45 17 49.548 71 17 57.962	247 24 45.5 266 58 52.5	67 25 21.2 86 58 52.7	Bien----- Mon. 490 ecc-----	1,187.7 6.06	3.074718 0.782186
Mon. 491 ecc-----	45 17 10.492 71 18 36.676	49 23 12.9 66 37 22.8 302 21 51.8 323 38 25.5	229 21 11.7 246 36 26.4 122 25 07.4 143 41 56.8	Howe----- Fourth----- Spect----- Deer-----	4,902.8 1,886.7 7,105.3 10,951.5	3.690444 3.275705 3.851585 4.039472
Mon. 491-----	45 17 13.192 71 18 38.187	338 26 39.7	158 26 40.8	Mon. 491 ecc-----	89.62	1.952410
Mon. 492 ecc-----	45 16 54.551 71 19 20.805	71 33 48.3 291 46 20.2 295 25 30.1	251 33 23.2 111 50 35.0 115 29 17.0	Fourth----- Pros----- Spect-----	811.7 8,421.4 7,710.7	2.909387 3.925384 3.887093
Mon. 492-----	45 16 54.592 71 19 21.030	71 22 00.2 284 37 10.2	251 21 35.3 104 37 10.4	Fourth----- Mon. 492 ecc-----	807.4 5.08	2.907105 0.705864
Mon. 493 ecc-----	45 16 32.249 71 19 59.824	43 29 51.3 190 33 14.2 288 32 26.0 331 58 59.6	223 28 49.1 10 33 16.8 108 36 40.6 152 01 23.3	Howe----- Fourth----- Spect----- Indian-----	2,773.2 439.2 8,242.5 9,403.1	3.442979 2.642644 3.916061 3.973271
Mon. 493-----	45 16 33.294 71 20 01.057	195 02 14.3 320 11 54.3	15 02 17.8 140 11 55.2	Fourth----- Mon. 493 ecc-----	413.7 42.00	2.616636 1.623198
Mon. 494 ecc-----	45 16 18.157 71 20 49.194	27 49 40.4 233 08 42.1 325 03 45.9	207 49 13.3 53 09 19.8 145 06 44.7	Howe----- Fourth----- Indian-----	1,783.1 1,445.4 9,594.3	3.251165 3.159976 3.982015
Mon. 494-----	45 16 19.618 71 20 52.204	304 29 32.0	124 29 34.1	Mon. 494 ecc-----	79.62	1.901022
Mon. 495 ecc-----	45 16 05.061 71 21 43.740	241 32 09.8 280 00 17.3 302 43 07.5 343 04 06.7	61 33 26.2 100 05 45.7 122 48 51.6 163 04 18.3	Fourth----- Spect----- Deer----- Howe-----	2,667.9 10,236.4 12,569.4 1,225.7	3.426167 4.010149 4.099313 3.088398
Mon. 495-----	45 16 05.722 71 21 44.515	242 05 34.1 320 22 09.1	62 06 51.2 140 22 09.8	Fourth----- Mon. 495 ecc-----	2,673.1 26.48	3.427022 1.423000
Mon. 496 ecc-----	45 15 51.866 71 21 43.619	24 23 52.5 40 59 57.9 335 09 23.6	204 22 54.3 220 58 38.0 155 09 35.2	Eck----- Joe----- Howe-----	4,329.9 3,741.6 843.3	3.636473 3.573059 2.926007
Mon. 496-----	45 15 52.274 71 21 44.378	24 07 47.0 307 18 59.0	204 06 49.3 127 18 59.5	Eck----- Mon. 496 ecc-----	4,334.6 20.81	3.636944 1.318189
Holl's-----	45 14 49.873 71 21 53.308	37 51 07.3 67 55 01.9	217 50 16.0 247 53 48.9	Eck----- Joe-----	2,570.2 2,421.0	3.409971 3.383986
Ridge-----	45 14 04.115 71 20 57.122	77 35 48.2 98 15 02.9 139 03 47.6	257 34 17.0 278 13 10.0 319 03 07.7	Eck----- Joe----- Hollis-----	2,869.9 3,505.1 1,870.1	3.457860 3.544704 3.271861

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.						
	° ' "	° ' "	° ' "			
Near-----	45 14 27.941 71 22 37.811	235 05 48.6 288 30 23.3	55 06 20.2 108 31 34.8	Hollis----- Ridge-----	1, 183.4 2, 316.1	3. 073133 3. 364761
Alec-----	45 14 48.267 71 22 00.747	52 11 00.1 253 00 20.8 314 28 46.2	232 10 33.8 73 00 26.1 134 29 31.4	Near----- Hollis----- Ridge-----	1, 023.3 169.6 1, 945.1	3. 010008 2. 229515 3. 288952
Tall-----	45 14 43.268 71 22 29.583	20 46 15.2 255 32 34.0 300 55 37.6	200 46 09.4 75 32 59.8 120 56 43.3	Near----- Hollis----- Ridge-----	506.0 817.0 2, 351.2	2. 704179 2. 912204 3. 371281
Mon. 497 ecc-----	45 15 06.453 71 21 31.124	39 02 43.5 43 23 17.6 62 27 55.3 338 55 23.4	219 01 36.4 223 23 01.8 242 26 26.5 158 55 47.5	Eck----- Hollis----- Joe----- Ridge-----	3, 272.0 704.3 3, 075.6 2, 062.4	3. 514807 2. 847763 3. 487930 3. 314370
Mon. 497-----	45 15 06.741 71 21 31.391	38 52 05.9 326 48 13.9	218 50 59.0 146 48 14.1	Eck----- Mon. 497 ecc-----	3, 275.2 10.63	3. 515239 1. 026452
Mon. 498-----	45 14 52.229 71 21 54.543	339 41 08.6	159 41 09.5	Hollis-----	77.56	1. 889614
Mon. 499-----	45 14 47.223 71 22 09.499	256 57 07.6 260 24 40.5 310 07 26.8	76 57 19.1 80 24 46.7 130 08 18.2	Hollis----- Alec----- Ridge-----	362.5 193.6 2, 064.7	2. 559253 2. 286848 3. 314858
Mon. 500 ecc-----	45 14 40.175 71 22 37.401	1 21 27.7 240 45 09.2 296 57 53.6	181 21 27.4 60 45 14.7 116 59 04.8	Near----- Tall----- Ridge-----	377.8 195.4 2, 454.2	2. 577245 2. 290929 3. 389911
Mon. 500-----	45 14 40.103 71 22 38.294	242 47 03.1 263 29 17.1	62 47 09.3 83 29 17.8	Tall----- Mon. 500 ecc-----	213.6 19.60	2. 329621 1. 292167
Mon. 501 ecc-----	45 14 14.876 71 23 38.912	70 09 02.8 199 27 26.3 322 33 56.9	250 06 36.0 19 27 28.2 142 34 20.5	Sightly----- Joe----- Eck-----	4, 793.0 180.1 1, 195.4	3. 680609 2. 255633 3. 077507
Mon. 501-----	45 14 14.875 71 23 32.252	70 43 32.2 153 20 52.8 328 30 55.2	250 41 00.7 333 20 50.0 148 31 14.1	Sightly----- Joe----- Eck-----	4, 929.9 190.1 1, 113.1	3. 692838 2. 278931 3. 046516
Mon. 502 ecc-----	45 14 18.184 71 24 42.523	267 18 53.1 296 25 56.1 355 50 40.2	87 19 40.1 116 27 04.8 175 51 00.8	Joe----- Eck----- Metallak-----	1, 449.0 2, 361.1 8, 793.6	3. 161077 3. 373117 3. 944165
Mon. 502-----	45 14 25.787 71 24 29.515	50 24 15.6 305 05 07.9	230 24 06.4 125 06 07.5	Mon. 502 ecc----- Eck-----	368.22 2, 237.0	2. 566108 3. 349661
Mon. 503 ecc-----	45 14 00.855 71 25 28.731	21 36 18.9 256 11 53.4 279 22 39.0 348 41 38.1	201 34 52.9 76 13 13.3 99 24 20.6 168 42 31.5	Ouilette----- Joe----- Eck----- Metallak-----	7, 177.1 2, 528.3 3, 164.6 8, 398.3	3. 855949 3. 402829 3. 500321 3. 924190
Mon. 503-----	45 14 01.497 71 25 28.056	36 35 35.6 348 49 07.7	216 35 35.1 168 50 00.6	Mon. 503 ecc----- Metallak-----	24.70 8, 414.8	1. 392609 3. 925046
Mon. 504-----	45 14 20.803 71 26 22.826	270 11 25.2 284 43 31.5 342 16 48.4	90 13 23.5 104 45 51.5 162 18 20.3	Joe----- Eck----- Metallak-----	3, 635.2 4, 448.5 9, 291.5	3. 560527 3. 648215 3. 968087
Mon. 505 ecc-----	45 14 14.003 71 26 36.339	21 41 26.0 281 19 27.4 340 07 39.2	201 41 05.3 101 21 57.1 160 09 20.7	Slightly----- Eck----- Metallak-----	1, 724.2 4, 688.5 9, 187.7	3. 236580 3. 671033 3. 963209
Mon. 505-----	45 14 11.604 71 26 37.863	21 34 04.9 204 09 51.8	201 33 45.3 24 09 52.9	Slightly----- Mon. 505 ecc-----	1, 643.1 81.19	3. 215652 1. 909477

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME TRIANGULATION—contd.	° ' "	° ' "	° ' "			
King-----	45 09 56.409 71 25 35.243	162 45 48.4 210 28 41.3 291 03 59.6	342 44 44.3 30 29 01.5 111 04 57.7	Sightly----- Knoll----- Metallak-----	6,648.9 1,225.0 1,916.8	3.822752 3.088119 3.282587
Chesham, Quebec, church spire, 1916.	45 23 37.45 71 04 26.43	25 21 33 38 32 34 58 15 06	205 17 59 218 25 45 238 06 05	Peterie----- Spect----- Bien-----	15,331.0 20,123.8 19,502.8	4.185570 4.303710 4.290098
Chartierville, Quebec, church spire, 1916.	45 17 51.11 71 12 16.92	16 16 13 119 26 34 310 36 33	196 15 27 299 26 01 130 38 33	Pros----- Northwest Knoll-- Peterie-----	5,077.5 1,184.7 4,861.0	3.705653 3.073595 3.686723
MINOR SCHEME, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R						
Mon. 308-----	46 25 02.489 70 03 25.267	188 20 29.6	8 20 31.2	Mon. 307-----	322.76	2.508881
Ref. Mon. 309-----	46 24 58.575 70 03 26.097	188 20 29.0	8 20 29.6	Mon. 308-----	122.15	2.086911
S-1-----	46 24 58.338 70 03 23.071	96 27 20.3	276 27 18.1	Ref. Mon. 309----	65.0	1.813110
S-2-----	46 24 52.917 70 03 27.961	192 49 59.4 211 57 12.2	12 50 00.7 31 57 15.7	Ref. Mon. 309---- S-1-----	179.2 197.3	2.253323 2.295133
C-2-----	46 24 54.702 70 03 30.535	218 23 40.1 234 50 13.7 315 05 12.5	38 23 43.3 54 50 19.1 135 05 14.4	Ref. Mon. 309---- S-1----- S-2-----	152.6 195.0 77.8	2.183503 2.289940 1.891258
S-3-----	46 24 51.962 70 03 34.919	227 53 55.6 258 46 54.8	47 53 58.8 78 46 59.9	C-2----- S-2-----	126.2 151.5	2.101017 2.180373
C-3-----	46 24 54.528 70 03 36.912	267 44 33.5 284 35 26.4 331 45 00.6	87 44 38.1 104 35 32.9 151 45 02.0	C-2----- S-2----- S-3-----	136.3 197.5 89.9	2.134512 2.295646 1.953986
C-4-----	46 24 53.096 70 03 41.659	246 25 49.9 283 40 09.9	66 25 53.3 103 40 14.8	C-3----- S-3-----	110.6 148.1	2.043747 2.170679
S-4-----	46 24 49.915 70 03 40.178	162 08 48.8 206 05 12.1 240 37 52.4	342 08 47.7 26 05 14.5 60 37 56.2	C-4----- C-3----- S-3-----	103.2 158.6 128.9	2.013606 2.200284 2.110170
C-5-----	46 24 52.049 70 03 48.767	257 58 46.5 289 45 28.9	77 58 51.6 109 45 35.1	C-4----- S-4-----	155.2 194.9	2.190905 2.289840
S-5-----	46 24 49.219 70 03 49.249	186 43 31.0 233 33 28.4 263 40 19.3	6 43 31.4 53 33 33.9 83 40 25.9	C-5----- C-4----- S-4-----	88.0 201.5 194.9	1.944383 2.304292 2.289876
S-6-----	46 24 49.248 70 03 54.009	232 19 03.9 270 30 30.8	52 19 07.7 90 30 34.2	C-5----- S-5-----	141.5 101.7	2.150635 2.007133
C-6-----	46 24 51.383 70 03 57.413	263 38 48.1 290 58 04.4 312 11 51.4	83 38 54.4 110 58 10.3 132 11 53.9	C-5----- S-5----- S-6-----	185.8 186.7 98.1	2.269029 2.271180 1.991809
C-7-----	46 24 46.780 70 04 00.727	206 28 31.0 242 01 35.2	26 28 33.4 62 01 40.1	C-6----- S-6-----	158.8 162.5	2.200766 2.210753
S-7 (east base)-----	46 24 45.117 70 03 58.817	141 32 21.6 188 48 30.1 218 49 50.5	321 32 20.2 8 48 31.1 38 49 54.0	C-7----- C-6----- S-6-----	65.6 195.8 163.8	1.816891 2.291797 2.214209



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R—C O N.						
	° ' "	° ' "	° ' "			
Ref. Mon. C-8	46 24 45.615 70 04 06.197	252 52 26.1 275 34 08.9	72 52 30.1 95 34 14.3	C-7 S-7	122.2 158.4	2.087201 2.199661
Ref. Mon. S-8 (west base).	46 24 42.139 70 04 04.364	159 57 33.0 208 27 22.8 232 11 05.6	339 57 31.6 28 27 25.4 52 11 09.6	Ref. Mon. C-8 C-7 S-7	114.2 163.0 149.97	2.057792 2.212201 2.175991
S 9	46 24 40.924 70 04 11.710	219 06 14.3 256 32 36.5	39 06 18.3 76 32 41.9	Ref. Mon. C-8 Ref. Mon. S-8	186.7 161.3	2.271068 2.207673
C-9	46 24 45.153 70 04 13.666	264 53 09.4 295 05 44.2 342 15 37.8	84 53 14.8 115 05 51.0 162 15 39.2	Ref. Mon. C-8 Ref. Mon. S-8 S-9	160.1 219.4 137.1	2.204515 2.341169 2.137033
C-10	46 24 41.725 70 04 26.190	248 24 39.0 274 34 18.4	68 24 48.1 94 34 28.9	C-9 S-9	287.7 310.3	2.458896 2.491719
S-10	46 24 36.612 70 04 21.614	148 14 17.2 212 46 11.3 237 48 51.8	328 14 13.9 32 46 17.1 57 48 59.0	C-10 C-9 S-9	185.7 313.6 249.9	2.268752 2.496411 2.397835
C-11	46 24 37.430 70 04 38.864	243 53 54.3 273 55 07.2	63 54 03.5 93 55 19.7	C-10 S-10	301.4 369.3	2.479204 2.567391
S 11	46 24 31.079 70 04 38.820	179 43 19.3 219 22 15.7 245 03 47.1	359 43 19.3 39 22 24.9 65 03 59.6	C-11 C-10 S-10	196.1 425.2 405.3	2.292510 2.628636 2.607753
Ref. Mon. 311	46 24 34.134 70 04 37.601	15 25 32.0 165 09 13.8	195 25 31.1 345 09 12.9	S-11 C-11	97.9 105.3	1.990594 2.022410
Ref. Mon. 310	46 24 35.530 70 04 37.128	13 11 59.4 147 42 11.7	193 11 59.1 327 42 10.5	Ref. Mon. 311 C-11	44.3 69.4	1.646147 1.841456
S-12	46 24 34.442 70 04 55.789	255 40 49.9 285 59 11.5	75 41 02.1 105 59 23.7	C-11 S-11	373.1 377.0	2.571802 2.576379
C-12	46 24 41.677 70 04 53.796	10 47 20.2 292 20 55.5 315 39 01.3	190 47 18.8 112 21 06.3 135 39 12.1	S-12 C-11 S-11	227.4 344.8 457.6	2.356803 2.537595 2.660492
Ref. Mon. C-13	46 24 40.697 70 05 13.816	265 57 02.1 296 38 13.3	85 57 16.6 116 38 26.4	C-12 S-12	428.7 430.7	2.632105 2.634222
S-13	46 24 32.594 70 05 18.230	200 38 58.8 241 44 40.4 263 12 29.7	20 39 02.0 61 44 58.1 83 12 46.0	Ref. Mon. C-13 C-12 S-12	267.4 592.5 482.7	2.427125 2.772665 2.683687
C-14	46 24 40.994 70 05 35.135	271 08 59.8 305 41 17.7	91 09 15.2 125 41 29.9	Ref. Mon. C-13 S-13	455.4 444.6	2.658433 2.647931
Ref. Mon. S-14	46 24 33.766 70 05 36.527	187 35 18.0 246 11 23.6 275 17 08.7	7 35 19.0 66 11 40.0 95 17 21.9	C-14 Ref. Mon. C-13 S-13	225.2 530.2 392.5	2.352490 2.724448 2.593814
Ref. Mon. C-16	46 24 34.301 70 05 52.130	240 20 34.4 272 50 05.2	60 20 46.7 92 50 16.5	C-14 Ref. Mon. S-14	417.7 333.7	2.620876 2.523328
C-15	46 24 41.179 70 05 49.006	17 26 32.8 271 06 01.7 310 39 09.3	197 26 30.5 91 06 11.7 130 39 18.3	Ref. Mon. C-16 C-14 Ref. Mon. S-14	222.6 296.3 351.3	2.347544 2.471763 2.545713
S-15	46 24 15.058 70 05 43.020	161 51 59.6 193 29 57.1	341 51 53.0 13 30 01.8	Ref. Mon. C-16 Ref. Mon. S-14	625.2 594.1	2.796042 2.773845
C-17	46 24 15.141 70 06 03.558	202 25 10.5 225 06 39.2 270 20 02.1	22 25 18.8 45 06 58.8 90 20 17.0	Ref. Mon. C-16 Ref. Mon. S-14 S-15	640.0 814.9 438.7	2.806168 2.911116 2.642190

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, S O U T H W E S T B R A N C H   O F   S T. J O H N   R I V E R—C O N.	° ' "	° ' "	° ' "			
Ref. Mon. S-16-----	46 23 55.225 70 05 56.297	165 50 40.8 204 50 58.5	345 50 35.5 24 51 08.1	C-17----- S-15-----	634.2 674.9	2.802246 2.829232
Ref. Mon. C-18-----	46 23 58.646 70 06 08.799	192 23 49.9 227 22 36.0 291 34 42.8	12 23 53.7 47 22 54.7 111 34 51.9	C-17----- S-15----- Ref. Mon. S-16---	521.5 748.4 287.2	2.717248 2.874122 2.458210
S-17-----	46 23 39.797 70 06 09.018	180 27 33.9 209 42 07.8	0 27 34.0 29 42 17.0	Ref. Mon. C-18--- Ref. Mon. S-16---	582.0 548.5	2.764956 2.739140
C-19-----	46 23 45.135 70 06 19.566	208 52 02.7 237 55 10.5 306 10 45.9	28 52 10.5 57 55 27.4 126 10 53.6	Ref. Mon. C-18--- Ref. Mon. S-16--- S-17-----	476.4 586.7 279.2	2.677982 2.768400 2.445908
Ref. Mon. C-20-----	46 23 32.273 70 06 40.370	228 13 05.4 250 52 10.7	48 13 20.4 70 52 33.4	C-19----- S-17-----	596.1 709.0	2.775284 2.850642
Ref. Mon. S-18-----	46 23 21.977 70 06 29.816	144 39 12.0 197 01 37.0 218 55 18.5	324 39 04.4 17 01 44.4 38 55 33.6	Ref. Mon. C-20--- C-19----- S-17-----	389.8 747.8 707.3	2.590824 2.873812 2.849586
Ref. Mon. C-22-----	46 23 21.914 70 07 03.037	236 33 08.8 269 50 18.1	56 33 25.2 89 50 42.1	Ref. Mon. C-20--- Ref. Mon. S-18---	580.4 709.8	2.763740 2.851156
Ref. Mon. C-21-----	46 23 10.009 70 06 54.089	152 31 12.1 203 05 28.6 234 31 38.0	332 31 05.6 23 05 38.5 54 31 55.5	Ref. Mon. C-22--- Ref. Mon. C-20--- Ref. Mon. S-18---	414.3 747.4 636.8	2.617355 2.873531 2.804032
S-19-----	46 22 59.600 70 07 17.666	204 24 04.2 237 27 37.5	24 24 14.8 57 27 54.6	Ref. Mon. C-22--- Ref. Mon. C-21---	756.6 597.6	2.878863 2.776410
C-23-----	46 23 12.750 70 07 30.699	244 24 51.1 276 10 11.9 325 33 11.6	64 25 11.1 96 10 38.4 145 33 21.0	Ref. Mon. C-22--- Ref. Mon. C-21--- S-19-----	655.3 786.8 492.4	2.816437 2.895882 2.692286
Ref. Mon. S-20-----	46 22 49.225 70 07 37.162	190 45 52.5 232 26 28.9	10 45 57.2 52 26 43.0	C-23----- S-19-----	739.4 525.5	2.868871 2.720603
Ref. Mon. C-24-----	46 22 58.128 70 07 53.747	227 29 06.1 266 37 20.1 307 47 41.2	47 29 22.8 86 37 46.2 127 47 53.2	C-23----- S-19----- Ref. Mon. S-20---	668.1 772.4 448.5	2.824863 2.887818 2.651783
C-25-----	46 22 37.250 70 07 55.187	182 43 58.1 226 10 14.3	2 43 59.1 46 10 27.3	Ref. Mon. C-24--- Ref. Mon. S-20---	645.4 534.0	2.809820 2.727505
S-21-----	46 22 34.879 70 07 40.289	102 57 06.3 158 10 04.8 188 34 42.6	282 56 55.5 338 09 55.0 8 34 44.8	C-25----- Ref. Mon. C-24--- Ref. Mon. S-20---	326.7 773.3 448.0	2.514157 2.888363 2.651266
Ref. Mon. C-26-----	46 22 21.656 70 07 48.712	163 58 01.3 203 47 36.3	343 57 56.6 23 47 42.4	C-25----- S-21-----	501.0 446.2	2.699839 2.649553
Ref. Mon. S-22 (north base).	46 22 24.041 70 07 34.882	76 00 45.0 133 13 35.2 160 56 58.8	256 00 35.0 313 13 20.5 340 56 54.9	Ref. Mon. C-26--- C-25----- S-21-----	304.6 595.6 354.0	2.483783 2.774923 2.549059
S-23 (south base)---	46 22 13.120 70 07 30.504	124 06 26.6 164 29 26.8	304 06 13.4 344 29 23.6	Ref. Mon. C-26--- Ref. Mon. S-22---	470.0 349.94	2.672123 2.543990
S-24-----	46 22 09.742 70 07 44.245	165 26 59.1 204 22 59.2 250 26 45.3	345 26 55.9 24 23 06.0 70 26 55.3	Ref. Mon. C-26--- Ref. Mon. S-22--- S-23-----	380.1 484.7 311.7	2.579847 2.685515 2.493715
C-27-----	46 22 13.920 70 08 15.642	247 27 30.3 280 52 38.2	67 27 49.8 100 53 00.9	Ref. Mon. C-26--- S-24-----	623.2 683.4	2.794616 2.834657

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R—CON.						
	° ' "	° ' "	° ' "			
Ref. Mon. S-25-----	46 22 03.381 70 08 10.802	162 22 00.9 219 55 03.3 250 54 34.3	342 21 57.4 39 55 19.3 70 54 53.5	C-27----- Ref. Mon. C-26--- S-24-----	341.5 735.8 600.7	2.533357 2.866747 2.778650
Ref. Mon. C-28-----	46 21 57.795 70 08 37.302	222 55 00.7 253 03 47.7	42 55 16.4 73 04 06.9	C-27----- Ref. Mon. S-25---	679.9 592.1	2.832438 2.772404
Ref. Mon. S-26-----	46 21 49.283 70 08 23.408	131 30 27.3 192 18 33.3 211 45 26.9	311 30 17.2 12 18 38.9 31 45 36.0	Ref. Mon. C-28--- C-27----- Ref. Mon. S-25---	396.6 778.6 511.9	2.598342 2.891324 2.709217
C-29-----	46 21 40.916 70 08 54.736	215 34 01.3 248 54 09.7	35 34 13.9 68 54 32.4	Ref. Mon. C-28--- Ref. Mon. S-26---	640.7 717.8	2.806658 2.856007
S-27-----	46 21 34.560 70 08 38.594	119 37 46.2 182 12 14.5 215 31 44.9	299 37 34.5 2 12 15.4 35 31 55.9	C-29----- Ref. Mon. C-28--- Ref. Mon. S-26---	397.0 718.0 558.6	2.598788 2.856096 2.747110
Ref. Mon. S-29-----	46 21 28.254 70 09 02.902	204 03 38.6 249 27 26.2	24 03 44.5 69 27 43.8	C-29----- S-27-----	428.2 555.0	2.631633 2.744267
S-28-----	46 21 22.378 70 08 48.708	120 52 24.9 167 18 46.2 209 53 36.7	300 52 14.6 347 18 41.8 29 53 44.0	Ref. Mon. S-29--- C-29----- S-27-----	353.6 586.7 433.9	2.548452 2.768433 2.637352
Ref. Mon. C-30-----	46 21 42.104 70 09 13.930	275 06 28.4 331 07 53.7	95 06 42.3 151 08 01.7	C-29----- Ref. Mon. S-29---	412.0 488.4	2.614869 2.688737
S-30-----	46 21 31.621 70 09 16.399	189 15 37.6 238 12 39.1 289 48 51.2	9 15 39.4 58 12 54.8 109 49 01.0	Ref. Mon. C-30--- C-29----- Ref. Mon. S-29---	328.0 544.8 306.7	2.515837 2.736275 2.486741
Ref. Mon. C-31-----	46 21 43.840 70 09 42.164	275 04 21.0 304 24 31.1	95 04 41.4 124 24 49.7	Ref. Mon. C-30--- S-30-----	605.9 667.6	2.782433 2.824543
Ref. Mon. S-31-----	46 21 27.708 70 09 37.028	167 34 10.9 228 00 17.3 254 40 44.9	347 34 07.2 48 00 34.0 74 40 59.8	Ref. Mon. C-31--- Ref. Mon. C-30--- S-30-----	510.1 664.4 457.3	2.707627 2.822425 2.660176
Ref. Mon. C-32-----	46 21 34.305 70 10 13.137	246 01 28.6 284 46 39.4	66 01 51.0 104 47 05.5	Ref. Mon. C-31--- Ref. Mon. S-31---	724.6 798.4	2.860124 2.902212
Ref. Mon. S-32-----	46 21 23.305 70 10 07.328	159 54 56.9 220 18 38.2 258 08 41.0	339 54 52.7 40 18 56.4 78 09 02.9	Ref. Mon. C-32--- Ref. Mon. C-31--- Ref. Mon. S-31---	361.6 831.5 661.9	2.558266 2.919877 2.820796
S-33-----	46 21 28.288 70 10 18.505	211 42 10.9 302 46 37.0	31 42 14.8 122 46 45.1	Ref. Mon. C-32--- Ref. Mon. S-32---	218.4 284.2	2.339176 2.453623
Ref. Mon. S-34-----	46 21 16.880 70 10 28.658	211 38 28.8 246 29 10.3	31 38 36.1 66 29 25.7	S-33----- Ref. Mon. S-32---	413.8 497.3	2.616758 2.696631
Ref. Mon. C-33-----	46 21 24.060 70 10 44.881	245 00 17.4 256 57 38.0 271 39 28.4 302 34 56.8	65 00 40.4 76 57 57.1 91 39 55.6 122 35 08.6	Ref. Mon. C-32--- S-33----- Ref. Mon. S-32--- Ref. Mon. S-34---	748.8 578.8 803.2 411.6	2.874347 2.762551 2.904827 2.614526
Ref. Mon. S-35-----	46 21 04.649 70 10 50.875	192 04 04.3 231 30 41.3	12 04 08.6 51 30 57.4	Ref. Mon. C-33--- Ref. Mon. S-34---	612.9 606.9	2.787386 2.783084
Ref. Mon. C-34-----	46 21 11.268 70 10 58.437	216 16 05.3 254 46 14.0 321 38 52.7	36 16 15.1 74 46 35.6 141 38 58.2	Ref. Mon. C-33--- Ref. Mon. S-34--- Ref. Mon. S-35---	489.9 659.9 260.6	2.690120 2.819452 2.415957
S-36-----	46 20 56.189 70 11 12.991	213 45 20.2 241 04 48.9	33 45 30.7 61 05 04.9	Ref. Mon. C-34--- Ref. Mon. S-35---	560.0 540.2	2.748199 2.732592



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, S O U T H W E S T B R A N C H   O F   S T. J O H N   R I V E R—con.						
	°   '   "	°   '   "	°   '   "			
C-35-----	46 21 02.426 70 11 19.404	238 39 23.5 263 34 32.4 324 32 50.6	58 39 38.7 83 34 53.1 144 32 55.3	Ref. Mon. C-34--- Ref. Mon. S-35--- S-36-----	524.9 613.9 236.4	2.720068 2.788064 2.373672
Ref. Mon. S-37-----	46 20 50.529 70 11 24.551	196 40 42.6 234 44 23.4	16 40 46.3 54 44 31.8	C-35----- S-36-----	383.5 302.7	2.583733 2.481049
Ref. Mon. C-36-----	46 20 54.068 70 11 35.845	233 42 58.3 262 21 52.4 294 20 30.8	53 43 10.2 82 22 09.0 114 20 39.0	C-35----- S-36----- Ref. Mon. S-37---	436.1 493.1 265.1	2.639600 2.692899 2.423364
S-38-----	46 20 42.109 70 11 36.420	181 54 28.7 224 18 37.7	1 54 29.1 44 18 46.3	Ref. Mon. C-36--- Ref. Mon. S-37---	369.5 363.3	2.567560 2.560311
C-37-----	46 20 44.584 70 11 44.941	213 35 31.1 247 10 02.3 292 45 24.6	33 35 37.7 67 10 17.1 112 45 30.8	Ref. Mon. C-36--- Ref. Mon. S-37--- S-38-----	351.5 473.1 197.6	2.545958 2.674926 2.295747
Ref. Mon. C-38-----	46 20 29.407 70 11 52.453	198 55 14.6 221 09 30.6	18 55 20.0 41 09 42.2	C-37----- S-38-----	495.4 520.9	2.694938 2.716764
Ref. Mon. S-39-----	46 20 27.832 70 11 39.908	100 16 38.9 168 14 46.8 189 36 07.9	280 16 29.8 348 14 43.1 9 36 10.4	Ref. Mon. C-38--- C-37----- S-38-----	272.7 528.3 447.1	2.435606 2.722905 2.650389
S-40-----	46 20 16.524 70 11 49.652	171 26 07.7 210 49 43.7	351 26 05.7 30 49 50.8	Ref. Mon. C-38--- Ref. Mon. S-39---	402.3 406.6	2.604514 2.609164
C-39-----	46 20 18.743 70 12 02.178	212 16 33.1 239 29 21.4 284 20 40.6	32 16 40.1 59 29 37.5 104 20 49.6	Ref. Mon. C-38--- Ref. Mon. S-39--- S-40-----	389.4 552.8 276.5	2.590449 2.742556 2.441708
Ref. Mon. S-41-----	46 20 04.772 70 12 05.263	188 41 41.1 222 36 54.0	8 41 43.4 42 37 05.3	C-39----- S-40-----	436.4 493.1	2.639880 2.692930
Ref. Mon. C-40-----	46 20 10.175 70 12 14.579	225 04 12.8 249 48 24.4 309 56 05.9	45 04 21.8 69 48 42.4 129 56 12.6	C-39----- S-40----- Ref. Mon. S-41---	374.6 568.0 259.9	2.573585 2.754365 2.414755
S-42-----	46 19 53.734 70 12 17.633	187 19 49.5 217 49 12.9	7 19 51.7 37 49 21.8	Ref. Mon. C-40--- Ref. Mon. S-41---	511.8 431.5	2.709122 2.634944
C-41-----	46 20 00.185 70 12 29.018	225 01 52.2 254 25 15.1 309 16 55.3	45 02 02.6 74 25 32.2 129 17 03.5	Ref. Mon. C-40--- Ref. Mon. S-41--- S-42-----	436.5 527.4 314.6	2.639950 2.722176 2.497757
Ref. Mon. C-42-----	46 19 47.586 70 12 36.716	202 56 28.8 245 03 25.7	22 56 34.4 65 03 39.5	C-41----- S-42-----	422.4 450.2	2.625755 2.653370
Ref. Mon. S-43-----	46 19 43.128 70 12 25.509	119 51 55.3 171 53 26.9 207 13 24.7	299 51 47.2 351 53 24.4 27 13 30.4	Ref. Mon. C-42--- C-41----- S-42-----	276.4 532.0 368.3	2.441576 2.725895 2.566162
C-43-----	46 19 28.917 70 12 35.643	177 43 12.4 206 17 24.1	357 43 11.6 26 17 31.4	Ref. Mon. C-42--- Ref. Mon. S-43---	576.9 489.4	2.761094 2.689679
S-44-----	46 19 27.476 70 12 19.380	97 17 32.1 149 09 21.5 164 49 24.0	277 17 20.4 329 09 09.0 344 49 19.6	C-43----- Ref. Mon. C-42--- Ref. Mon. S-43---	350.7 723.2 500.8	2.544973 2.859286 2.699634
Ref. Mon. S-45-----	46 19 18.579 70 12 23.022	139 46 39.5 195 50 01.8	319 46 30.4 15 50 04.4	C-43----- S-44-----	418.1 285.5	2.621267 2.455680
Ref. Mon. C-44-----	46 19 18.462 70 12 36.664	183 52 21.6 233 01 43.9 269 17 24.0	3 52 22.3 53 01 56.3 89 17 33.8	C-43----- S-44----- Ref. Mon. S-45---	323.6 462.8 291.9	2.509969 2.665395 2.465195

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, S O U T H W E S T BRANCH OF ST. JOHN RIVER—CON.	° ' "	° ' "	° ' "			
C-45-----	46 19 10.719 70 12 32.428	159 14 25.6 219 39 47.1	339 14 22.6 39 39 53.9	Ref. Mon. C-44--- Ref. Mon. S-45---	255.7 315.3	2.407701 2.498677
S-46-----	46 19 13.005 70 12 22.967	70 46 40.0 119 54 02.5 179 36 19.9	250 46 33.2 299 53 52.7 359 36 19.9	C-45----- Ref. Mon. C-44--- Ref. Mon. S-45---	214.4 338.0 172.1	2.331163 2.528957 2.235819
C-46-----	46 19 02.899 70 12 28.187	159 24 10.6 199 41 23.7	339 24 07.6 19 41 27.5	C-45----- S-46-----	258.0 331.4	2.411551 2.520392
S-47-----	46 19 06.443 70 12 14.758	69 09 08.1 109 15 20.1 139 05 01.4	249 08 58.4 289 15 07.4 319 04 55.5	C-46----- C-45----- S-46-----	307.4 400.4 268.2	2.487758 2.602548 2.428380
S-48-----	46 18 57.582 70 12 10.286	113 12 18.9 160 43 35.7	293 12 06.0 340 43 32.5	C-46----- S-47-----	416.7 289.8	2.619815 2.462159
C-47-----	46 18 54.147 70 12 23.407	159 16 24.8 205 59 05.3 249 18 05.7	339 16 21.4 25 59 11.6 69 18 15.2	C-46----- S-47----- S-48-----	288.9 422.4 300.1	2.460808 2.625681 2.477268
Ref. Mon. S-49-----	46 18 42.074 70 12 08.399	139 15 33.4 175 10 46.9	319 15 22.6 355 10 45.6	C-47----- S-48-----	492.0 480.6	2.691993 2.681741
Ref. Mon. C-48-----	46 18 42.761 70 12 20.322	169 21 53.1 205 08 06.0 274 45 13.6	349 21 50.9 25 08 13.3 94 45 22.2	C-47----- S-48----- Ref. Mon. S-49---	357.7 505.5 256.0	2.553536 2.703724 2.408233
Ref. Mon. S-50-----	46 18 34.281 70 12 16.105	160 59 00.7 214 25 15.6	340 58 57.7 34 25 21.2	Ref. Mon. C-48--- Ref. Mon. S-49---	276.9 291.7	2.442386 2.464904
C-49-----	46 18 33.542 70 12 24.733	198 20 37.5 232 59 32.1 262 57 07.7	18 20 40.7 52 59 43.9 82 57 13.9	Ref. Mon. C-48--- Ref. Mon. S-49--- Ref. Mon. S-50---	299.9 437.7 186.0	2.476959 2.641138 2.269587
S-51-----	46 18 22.527 70 12 21.428	168 15 12.1 197 25 23.8	348 15 09.7 17 25 27.6	C-49----- Ref. Mon. S-50---	347.4 380.4	2.540825 2.580238
Ref. Mon. C-50-----	46 18 23.492 70 12 30.222	200 43 52.5 222 12 02.0 279 00 09.3	20 43 56.5 42 12 12.2 99 00 15.7	C-49----- Ref. Mon. S-50--- S-51-----	331.8 449.7 190.5	2.520860 2.652920 2.279963
C-51 (north base)---	46 18 11.604 70 12 28.995	175 54 33.9 205 38 53.0	355 54 33.0 25 38 58.5	Ref. Mon. C-50--- S-51-----	368.0 374.1	2.565852 2.573002
S-52-----	46 18 11.142 70 12 18.056	93 29 17.6 145 40 41.9 168 23 57.1	273 29 09.7 325 40 33.1 348 23 54.7	C-51----- Ref. Mon. C-50--- S-51-----	234.5 461.7 358.8	2.370217 2.664390 2.554908
Ref. Mon. C-52 (south base).	46 18 02.112 70 12 31.969	192 15 10.2 226 52 53.1	12 15 12.4 46 53 03.2	C-51----- S-52-----	299.90 407.9	2.476983 2.610570
Ref. Mon. S-53-----	46 17 57.540 70 12 21.643	122 34 21.6 160 04 59.2 190 21 27.2	302 34 14.1 340 04 53.9 10 21 29.8	Ref. Mon. C-52--- C-51----- S-52-----	262.3 461.9 426.9	2.418719 2.664535 2.630376
S-54-----	46 17 48.653 70 12 44.586	213 00 49.6 240 48 08.7	33 00 58.7 60 48 25.3	Ref. Mon. C-52--- Ref. Mon. S-53---	495.6 562.5	2.695122 2.750123
Ref. Mon. C-53-----	46 17 55.554 70 12 52.481	245 14 05.2 264 41 21.7 321 34 59.4	65 14 20.0 84 41 44.0 141 35 05.1	Ref. Mon. C-52--- Ref. Mon. S-53--- S-54-----	483.4 662.8 271.9	2.684344 2.821411 2.434466
C-54-----	46 17 44.392 70 13 02.180	211 03 40.9 250 44 20.0	31 03 47.9 70 44 32.7	Ref. Mon. C-53--- S-54-----	402.3 398.9	2.604585 2.600859

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R—C O N.	° ' "	° ' "	° ' "			
S-55-----	46 17 37.137 70 12 54.626	144 10 55.7 184 37 00.5 211 08 45.5	324 10 50.2 4 37 02.0 31 08 52.7	C-54----- Ref. Mon. C-53--- S-54-----	276.3 570.5 415.5	2.441327 2.756261 2.618555
Ref. Mon. S-56----	46 17 32.446 70 13 05.368	190 28 56.7 237 47 33.5	10 28 59.0 57 47 41.3	C-54----- S-55-----	375.1 271.7	2.574155 2.434155
C-55-----	46 17 41.756 70 13 12.255	249 19 08.7 290 42 14.2 332 51 06.1	69 19 16.0 110 42 27.0 152 51 11.1	C-54----- S-55----- Ref. Mon. S-56---	230.5 403.4 323.0	2.362650 2.605708 2.509254
Ref. Mon. C-56----	46 17 38.377 70 13 25.191	249 21 09.1 293 20 34.9	69 21 18.4 113 20 49.2	C-55----- Ref. Mon. S-56---	295.9 462.1	2.471123 2.664753
S-57-----	46 17 28.853 70 13 21.634	165 29 12.3 206 44 34.0 252 19 17.3	345 29 09.8 26 44 40.8 72 19 29.1	Ref. Mon. C-56--- C-55----- Ref. Mon. S-56---	303.8 446.1 365.4	2.482554 2.649466 2.562794
PRECISE TRAVERSE, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R A N D T H E H I G H L A N D S T O T H E C A N A D I A N P A C I F I C R A I L W A Y C R O S S I N G						
Ref. Mon. C-57----	46 17 46.842 70 13 46.179	300 11 23.0	120 11 38.2	Ref. Mon. C-56---	519.73	2.715778
Substation C-58----	46 17 12.948 70 14 12.438	208 14 13.3	28 14 32.3	Ref. Mon. C-57---	1,187.92	3.074789
Ref. Mon. C-58----	46 17 10.133 70 14 04.883	118 15 08.8	298 15 03.3	Substation C-58---	183.61	2.263894
Ref. Mon. S-58----	46 17 07.217 70 13 57.058	118 15 29.3	298 15 23.6	Ref. Mon. C-58---	190.17	2.279133
Ref. Mon. C-59----	46 16 38.162 70 14 39.378	208 13 53.8	28 14 13.3	Substation C-58---	1,219.15	3.086056
Ref. Mon. S-59----	46 16 31.199 70 14 20.620	118 09 40.1	298 09 26.5	Ref. Mon. C-59---	455.54	2.658530
Ref. Mon. C-60----	46 16 16.425 70 14 56.206	208 13 41.6	28 13 53.8	Ref. Mon. C-59---	761.76	2.881818
Ref. Mon. S-60----	46 16 10.781 70 14 41.102	118 19 02.9	298 18 52.0	Ref. Mon. C-60---	367.38	2.565112
Ref. Mon. C-61----	46 15 43.434 70 15 21.740	208 13 23.2	28 13 41.6	Ref. Mon. C-60---	1,156.14	3.063012
Ref. Mon. S-61----	46 15 36.633 70 15 06.758	123 12 20.7	303 12 09.9	Ref. Mon. C-61---	383.47	2.583736
Ref. Mon. C-62----	46 15 20.988 70 15 26.420	188 13 44.4	8 13 47.8	Ref. Mon. C-61---	700.27	2.845265
Ref. Mon. S-62----	46 15 19.328 70 15 11.077	98 52 04.7	278 51 53.6	Ref. Mon. C-62---	332.61	2.521936
Ref. Mon. C-63----	46 15 10.244 70 15 28.660	188 13 42.8	8 13 44.4	Ref. Mon. C-62---	335.18	2.525273
Ref. Mon. S-63----	46 15 08.335 70 15 06.463	97 04 11.1	277 03 55.1	Ref. Mon. C-63---	479.11	2.680436



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Ref. Mon. C-64-----	46 14 54.823 70 15 31.874	188 13 40.5	8 13 42.8	Ref. Mon. C-63---	481.10	2.682240
Ref. Mon. S-64-----	46 14 48.409 70 15 02.006	107 12 00.9	287 11 39.3	Ref. Mon. C-64---	669.77	2.825924
Ref. Mon. C-65-----	46 14 46.819 70 15 35.455	197 14 27.5	17 14 30.1	Ref. Mon. C-64---	258.77	2.412917
Ref. Mon. C-66-----	46 14 16.953 70 15 48.815	197 14 32.4	17 14 42.1	Ref. Mon. C-65---	965.56	2.984777
Ref. Mon. S-65-----	46 14 13.092 70 15 29.647	106 11 23.4	286 11 09.6	Ref. Mon. C-66---	427.64	2.631081
Traverse station 5---	46 14 13.447 70 15 50.383	197 14 31.3	17 14 32.4	Ref. Mon. C-66---	113.36	2.054440
Ref. Mon. C-67-----	46 13 41.827 70 16 16.140	209 28 37.7	29 28 56.3	Traverse station 5-	1,121.52	3.049806
Ref. Mon. S-66-----	46 13 29.586 70 15 50.525	124 33 02.2	304 32 43.7	Ref. Mon. C-67---	666.46	2.823772
Ref. Mon. C-68-----	46 12 50.263 70 16 58.122	209 28 07.4	29 28 37.7	Ref. Mon. C-67---	1,828.76	3.262156
Ref. Mon. S-67-----	46 12 33.524 70 16 18.731	121 28 25.2	301 27 56.8	Ref. Mon. C-68---	990.01	2.995641
Ref. Mon. C-69-----	46 12 42.552 70 17 00.578	192 28 20.6	12 28 22.4	Ref. Mon. C-68---	243.83	2.387086
Traverse station 7---	46 12 17.050 70 17 08.702	192 28 14.8	12 28 20.6	Ref. Mon. C-69---	806.44	2.906569
Ref. Mon. C-70-----	46 12 07.079 70 17 11.876	192 27 50.9	12 27 53.2	Traverse station 7-	315.30	2.498718
Ref. Mon. S-68-----	46 11 58.753 70 16 51.306	120 14 22.9	300 14 08.1	Ref. Mon. C-70---	510.49	2.707986
Ref. Mon. S-69-----	46 11 25.191 70 17 25.207	192 27 41.3	12 27 50.9	Ref. Mon. C-70---	1,324.55	3.122068
Ref. Mon. 313-----	46 11 29.151 70 17 36.190	297 26 04.2	117 26 12.1	Ref. Mon. S-69---	265.36	2.423828
Ref. Mon. 312-----	46 11 29.437 70 17 35.324	64 32 49.8	244 32 49.2	Ref. Mon. 313-----	20.57	1.313255
Ref. Mon. C-71-----	46 10 55.765 70 17 34.569	192 27 34.5	12 27 41.3	Ref. Mon. S-69---	930.50	2.968718
Ref. Mon. C-72-----	46 10 27.927 70 16 58.456	137 58 44.0	317 58 18.0	Ref. Mon. C-71---	1,157.04	3.063347
Ref. Mon. S-70-----	46 10 37.145 70 16 43.690	48 03 34.7	228 03 24.0	Ref. Mon. C-72---	425.82	2.629223
Ref. Mon. C-73-----	46 10 16.223 70 16 43.277	137 58 55.0	317 58 44.0	Ref. Mon. C-72---	486.43	2.687018

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R A N D T H E H I G H L A N D S T O T H E C A N A D I A N P A C I F I C R A I L W A Y C R O S S I N G—contd.						
Ref. Mon. S-71-----	° ' " 46 10 20.549 70 16 09.644	° ' " 79 30 52.8	° ' " 259 30 28.5	Ref. Mon. C-73---	733.75	2.865546
Ref. Mon. S-72-----	° ' " 46 09 58.952 70 15 46.659	° ' " 143 31 17.8	° ' " 323 31 01.2	Ref. Mon. S-71---	829.35	2.918737
Ref. Mon. C-74-----	° ' " 46 09 53.986 70 15 56.461	° ' " 233 54 05.9	° ' " 53 54 13.0	Ref. Mon. S-72---	260.27	2.415418
Ref. Mon. C-75-----	° ' " 46 09 27.808 70 15 13.531	° ' " 143 32 00.0	° ' " 323 31 36.1	Ref. Mon. S-72---	1,195.77	3.077648
Ref. Mon. S-73-----	° ' " 46 09 31.183 70 15 03.088	° ' " 65 03 33.5	° ' " 245 03 26.0	Ref. Mon. C-75---	247.12	2.392914
Ref. Mon. S-74-----	° ' " 46 09 03.452 70 14 23.300	° ' " 135 05 07.2	° ' " 315 04 38.5	Ref. Mon. S-73---	1,209.16	3.082483
Ref. Mon. C-76-----	° ' " 46 08 56.024 70 14 33.882	° ' " 224 43 02.5	° ' " 44 43 10.1	Ref. Mon. S-74---	322.74	2.508859
Ref. Mon. S-75-----	° ' " 46 08 47.165 70 13 59.939	° ' " 135 05 24.0	° ' " 315 05 07.2	Ref. Mon. S-74---	710.07	2.851304
Ref. Mon. S-76-----	° ' " 46 08 13.064 70 14 19.348	° ' " 201 35 01.7	° ' " 21 35 15.7	Ref. Mon. S-75---	1,132.31	3.053967
Ref. Mon. C-77-----	° ' " 46 08 16.632 70 14 32.256	° ' " 291 40 56.6	° ' " 111 41 05.9	Ref. Mon. S-76---	298.18	2.474477
Ref. Mon. S-77-----	° ' " 46 07 29.895 70 14 43.907	° ' " 201 34 44.0	° ' " 21 35 01.7	Ref. Mon. S-76---	1,433.35	3.156352
Ref. Mon. C-78-----	° ' " 46 07 33.732 70 14 57.873	° ' " 291 33 20.9	° ' " 111 33 31.0	Ref. Mon. S-77---	322.39	2.508376
Ref. Mon. S-78-----	° ' " 46 07 08.483 70 14 56.084	° ' " 201 34 35.2	° ' " 21 34 44.0	Ref. Mon. S-77---	710.94	2.851833
Ref. Mon. C-79-----	° ' " 46 07 12.641 70 15 10.502	° ' " 292 31 15.4	° ' " 112 31 25.8	Ref. Mon. S-78---	335.14	2.525224
Ref. Mon. S-79-----	° ' " 46 06 35.275 70 15 14.963	° ' " 201 34 19.2	° ' " 21 34 32.8	Ref. Mon. S-78---	1,102.56	3.042401
Ref. Mon. C-80-----	° ' " 46 06 37.623 70 15 23.495	° ' " 291 34 51.2	° ' " 111 34 57.3	Ref. Mon. S-79---	197.04	2.294549
Ref. Mon. C-81-----	° ' " 46 06 17.566 70 15 25.029	° ' " 201 34 11.9	° ' " 21 34 19.2	Ref. Mon. S-79---	587.98	2.769364
Mon. 314 (traverse station).	° ' " 46 05 59.000 70 15 28.073	° ' " 186 30 20.0	° ' " 6 30 22.2	Ref. Mon. C-81---	576.97	2.761151
Substation 315-----	° ' " 46 05 59.320 70 16 12.138	° ' " 270 35 35.1	° ' " 90 36 06.8	Mon. 314-----	946.54	2.976141
Mon. 315-----	° ' " 46 06 04.708 70 16 12.422	° ' " 357 54 00.3	° ' " 177 54 00.5	Substation 315---	166.47	2.221325
Substation 316-----	° ' " 46 05 59.470 70 16 33.081	° ' " 270 35 20.0	° ' " 90 35 35.1	Substation 315---	449.87	2.653090

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Mon. 316-----	46 06 05.553 70 16 31.423	10 44 15.4	190 44 14.2	Substation 316----	191.15	2.281378
Substation 317-----	46 05 59.592 70 16 50.238	270 35 07.6	90 35 20.0	Substation 316----	368.54	2.566482
Mon. 317-----	46 06 00.065 70 16 50.998	311 49 04.6	131 49 05.1	Substation 317-----	21.91	1.340587
Traverse station 18--	46 05 59.668 70 17 00.846	270 35 00.0 270 35 00.0	90 36 06.8 90 35 07.6	Mon. 314----- Substation 317-----	1,992.82 227.86	3.299467 2.357666
Mon. 318 (traverse station).	46 05 59.744 70 17 11.536	270 34 59.4	90 35 07.1	Traverse station 18--	229.62	2.361010
Traverse station 21--	46 05 56.822 70 17 13.195	201 33 20.2	21 33 21.4	Mon. 318-----	96.99	1.986737
Substation 319-----	46 05 20.514 70 17 33.805	201 32 53.8	21 33 08.7	Traverse station 21--	1,205.31	3.081100
Mon. 319-----	46 05 19.228 70 17 30.988	123 16 15.5	303 16 13.5	Substation 319-----	72.38	1.859612
Traverse station 22--	46 04 41.481 70 17 55.951	201 32 37.9 201 32 37.9	21 33 08.7 21 32 53.8	Traverse station 21-- Substation 319-----	2,501.00 1,295.69	3.398113 3.112499
Traverse station 23--	46 04 21.255 70 18 07.420	201 32 09.5	21 32 17.8	Traverse station 22--	671.36	2.826953
Substation 320-----	46 04 18.218 70 18 09.139	201 30 02.8	21 30 04.0	Traverse station 23--	100.78	2.003353
Mon. 320-----	46 04 15.196 70 18 11.321	206 40 51.6	26 40 53.2	Substation 320-----	104.43	2.018832
Substation 321-----	46 03 43.254 70 17 47.549	160 00 04.5	339 59 50.2	Traverse station 23--	1,248.60	3.096424
Mon. 321-----	46 03 39.055 70 17 56.284	235 22 22.1	55 22 28.4	Substation 321-----	228.16	2.358245
Traverse station 24--	46 03 38.718 70 17 45.178	160 00 06.2 160 00 06.2	339 59 50.2 340 00 04.5	Traverse station 23-- Substation 321-----	1,397.66 149.06	3.145402 2.173358
Traverse station 25--	46 03 39.265 70 16 59.140	89 01 33.8	269 01 00.6	Traverse station 24--	989.71	2.995510
Traverse station 26--	46 03 39.409 70 16 46.970	89 01 46.9	269 01 38.1	Traverse station 25--	261.62	2.417664
Mon. 322-----	46 03 35.148 70 16 44.768	160 12 34.8	340 12 33.2	Traverse station 26--	139.82	2.145574
Traverse station 27--	46 02 55.901 70 17 05.879	196 50 02.7	16 50 16.3	Traverse station 26--	1,403.48	3.147207
Mon. 323-----	46 02 54.632 70 17 06.883	208 50 59.7	28 51 00.4	Traverse station 27--	44.73	1.650561
Traverse station 28--	46 02 49.440 70 17 16.095	227 45 02.3	47 45 09.6	Traverse station 27--	296.71	2.472336



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R A N D T H E H I G H L A N D S T O T H E C A N A D I A N P A C I F I C R A I L W A Y C R O S S I N G—contd.						
	° ' "	° ' "	° ' "			
Traverse station 29	46 02 41.832 70 17 28.106	227 42 30.1	47 42 38.8	Traverse station 28	349.10	2.542955
Traverse station 30	46 02 26.117 70 17 52.980	227 46 59.3	47 47 17.2	Traverse station 29	722.13	2.858616
Mon. 324	46 02 27.732 70 17 44.743	74 16 50.7	254 16 44.8	Traverse station 30	183.99	2.264792
Traverse station 31	46 02 07.429 70 17 55.352	185 03 09.0	5 03 10.7	Traverse station 30	579.24	2.762856
Traverse station 32	46 01 54.500 70 17 56.988	185 02 13.3	5 02 14.5	Traverse station 31	400.72	2.602843
Substation 325	46 01 43.489 70 18 12.962	225 17 51.4	45 18 02.9	Traverse station 32	483.33	2.684244
Mon. 325	46 01 39.796 70 18 07.124	132 14 43.1	312 14 38.9	Substation 325	169.61	2.229451
Traverse station 33	46 01 12.775 70 18 57.505	225 17 19.3 225 17 19.3	45 18 02.9 45 17 51.4	Traverse station 32 Substation 325	1,831.36 1,348.03	3.262773 3.129699
Mon. 326	46 01 08.497 70 19 06.697	236 15 16.0	56 15 22.6	Traverse station 33	237.80	2.376209
Substation 327	46 00 50.266 70 18 29.864	139 27 11.1	319 26 51.2	Traverse station 33	914.61	2.961235
Mon. 327	46 00 43.397 70 18 42.052	231 01 54.8	51 02 03.6	Substation 327	337.22	2.527915
Substation 328	46 00 08.866 70 17 39.047	139 27 47.7	319 27 11.1	Substation 327	1,682.04	3.225837
Mon. 328	45 59 55.341 70 18 01.973	229 45 01.2	49 45 17.7	Substation 328	646.33	2.810451
Traverse station 34	45 59 41.969 70 17 06.047	139 28 11.4 139 28 11.4	319 26 51.2 319 27 47.7	Traverse station 33 Substation 328	3,689.33 1,092.69	3.566948 3.038495
Mon. 329	45 59 43.745 70 17 04.477	31 38 11.6	211 38 10.5	Traverse station 34	64.41	1.808926
Substation 330	45 58 37.154 70 18 09.711	214 23 41.4	34 24 27.2	Traverse station 34	2,425.35	3.384775
Mon. 330	45 58 47.367 70 18 32.760	302 25 57.9	122 26 14.5	Substation 330	587.88	2.769291
Traverse station 35	45 57 52.350 70 18 53.690	214 23 09.8 214 23 09.8	34 24 27.2 34 23 41.4	Traverse station 34 Substation 330	4,101.68 1,676.33	3.612962 3.224360
Mon. 331	45 57 49.478 70 18 59.573	235 00 26.2	55 00 30.4	Traverse station 35	154.62	2.189262
Traverse station 36	45 57 52.513 70 17 43.813	89 48 54.5	269 48 04.3	Traverse station 35	1,504.60	3.177422
Mon. 332	45 57 47.182 70 17 45.637	193 25 18.7	13 25 20.0	Traverse station 36	169.22	2.228462

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Traverse station 37..	45 57 52.659 70 16 36.142	89 49 48.0	269 48 59.3	Traverse station 36..	1,457.10	3.163489
Substation 333-----	45 57 40.203 70 16 16.919	132 53 49.1	312 53 35.3	Traverse station 37..	565.00	2.752049
Mon. 333-----	45 57 44.420 70 16 10.452	46 55 28.5	226 55 23.9	Substation 333-----	190.63	2.280193
Substation 334-----	45 57 13.253 70 15 35.340	132 54 19.0	312 53 49.1	Substation 333-----	1,222.33	3.087188
Mon. 334-----	45 57 09.088 70 15 40.582	221 16 41.5	41 16 45.3	Substation 334-----	171.11	2.233271
Traverse station 38..	45 57 07.330 70 15 26.205	132 54 25.6 132 54 25.6	312 53 35.3 312 54 19.0	Traverse station 37.. Substation 334-----	2,055.93 268.60	3.313008 2,429108
Substation 335-----	45 56 49.399 70 14 58.557	132 54 56.3	312 54 36.4	Traverse station 38..	813.07	2.910130
Mon. 335-----	45 56 55.817 70 14 46.474	52 43 02.1	232 42 53.4	Substation 335-----	327.09	2.514673
Traverse station 39..	45 56 38.360 70 14 41.540	132 55 08.5 132 55 08.5	312 54 36.4 312 54 56.3	Traverse station 38.. Substation 335-----	1,313.58 500.50	3.118455 2.699406
Traverse station 40..	45 56 24.736 70 14 23.270	136 54 31.6	316 54 18.5	Traverse station 39..	576.05	2.760459
Mon. 336-----	45 56 26.107 70 14 26.539	301 00 17.3	121 00 19.7	Traverse station 40..	82.17	1.914697
Substation 337-----	45 56 03.322 70 14 46.065	216 36 00.7	36 36 17.1	Traverse station 40..	823.57	2.915702
Mon. 337-----	45 56 07.599 70 14 54.705	305 21 00.9	125 21 07.1	Substation 337-----	228.22	2.358362
Substation 338-----	45 55 45.471 70 15 05.062	216 35 47.1	36 36 00.7	Substation 337-----	686.50	2.836642
Mon. 338-----	45 55 51.183 70 15 16.475	305 38 50.8	125 38 59.0	Substation 338-----	302.60	2.480862
Substation 339-----	45 55 30.291 70 15 21.213	216 35 35.5	36 35 47.1	Substation 338-----	583.75	2.766224
Mon. 339-----	45 55 36.782 70 15 33.794	306 28 22.6	126 28 31.6	Substation 339-----	337.12	2.527779
Substation 340-----	45 55 16.950 70 15 35.406	216 35 25.3	36 35 35.5	Substation 339-----	513.02	2.710141
Mon. 340-----	45 55 22.851 70 15 46.839	306 29 04.6	126 29 12.8	Substation 340-----	306.42	2.486312
Traverse station 41..	45 55 12.239 70 15 40.417	216 35 21.7 216 35 21.7	36 36 17.1 36 35 25.3	Traverse station 40.. Substation 340-----	2,788.00 181.16	3.445292 2.258060
Traverse station 42..	45 54 46.186 70 16 08.127	216 35 16.7	36 35 36.6	Traverse station 41..	1,001.81	3,000786

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T B R A N C H   O F   S T. J O H N   R I V E R   A N D T H E   H I G H L A N D S T O   T H E   C A N A D I A N P A C I F I C   R A I L W A Y C R O S S I N G—contd.						
	°   '   ''	°   '   ''	°   '   ''			
Traverse station 43--	45 54 38.588 70 15 45.794	115 59 08.6	295 58 52.6	Traverse station 42--	535.45	2.728718
Substation 341-----	45 54 37.883 70 15 43.722	115 59 43.0	295 59 41.5	Traverse station 43--	49.68	1.696217
Mon. 341-----	45 54 47.044 70 15 32.546	40 25 10.0	220 25 02.0	Substation 341----	371.50	2.569965
Traverse station 44--	45 54 32.490 70 15 27.880	115 59 54.4 115 59 54.4	295 59 41.5 295 59 43.0	Traverse station 43-- Substation 341-----	429.57 379.88	2.633029 2.579648
Substation 342-----	45 54 02.409 70 15 28.251	180 29 36.2	0 29 36.5	Traverse station 44--	928.79	2.967917
Mon. 342-----	45 54 02.795 70 15 27.811	38 32 22.4	218 32 22.1	Substation 342-----	15.23	1.182604
Traverse station 45--	45 53 59.316 70 15 28.289	180 29 36.2 180 29 36.2	0 29 36.5 0 29 36.2	Traverse station 44-- Substation 342-----	1,024.28 95.50	3.010420 1.979990
Traverse station 46--	45 53 38.640 70 15 43.700	207 29 36.4	27 29 47.5	Traverse station 45--	719.62	2.857104
Substation 343-----	45 53 14.075 70 16 05.287	211 32 00.0	31 32 15.5	Traverse station 46--	889.86	2.949320
Mon. 343-----	45 53 09.106 70 16 05.750	183 43 32.6	3 43 32.9	Substation 343-----	153.74	2.186798
Traverse station 47--	45 52 37.239 70 16 37.644	211 31 36.8 211 31 36.8	31 32 15.5 31 32 00.0	Traverse station 46-- Substation 343-----	2,224.15 1,334.29	3.347164 3.125251
Traverse station 48--	45 52 27.104 70 16 55.899	231 31 13.2	51 31 26.3	Traverse station 47--	502.88	2.701468
Substation 345-----	45 51 59.999 70 17 44.204	231 13 22.5	51 13 57.2	Traverse station 48--	1,336.34	3.125918
Mon. 345-----	45 51 59.308 70 17 40.946	106 53 17.5	286 53 15.2	Substation 345-----	73.45	1.865988
Traverse station 49--	45 51 52.485 70 17 57.591	231 13 12.9 231 13 12.9	51 13 57.2 51 13 22.5	Traverse station 48-- Substation 345-----	1,706.76 370.41	3.232172 2.568687
Traverse station 50--	45 51 45.948 70 18 14.069	240 24 38.7	60 24 50.5	Traverse station 49--	408.73	2.611439
Traverse station 51--	45 51 02.521 70 20 00.925	239 48 21.8	59 49 38.5	Traverse station 50--	2,666.84	3.425998
Mon. 346-----	45 51 11.845 70 20 06.475	337 24 56.1	157 25 00.1	Traverse station 51--	311.79	2.493861
Substation 347-----	45 50 45.803 70 20 52.247	245 00 16.5	65 00 53.3	Traverse station 51--	1,221.75	3.086981
Mon. 347-----	45 50 51.017 70 20 57.208	326 22 35.7	146 22 39.3	Substation 347-----	193.33	2.286295
Traverse station 52--	45 50 42.042 70 21 03.788	245 00 08.2 245 00 08.2	65 00 53.3 65 00 16.5	Traverse station 51-- Substation 347-----	1,496.52 274.77	3.175082 2.438976



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Traverse station 53	45 50 21.953 70 21 24.260	215 27 32.7	35 27 47.4	Traverse station 52	761.48	2.881656
Substation 348	45 50 15.750 70 21 47.149	248 48 24.1	68 48 40.5	Traverse station 53	529.78	2.724098
Mon. 348	45 50 08.940 70 21 45.096	168 06 01.3	348 05 59.8	Substation 348	214.88	2.332188
Traverse station 54	45 50 09.647 70 22 09.666	248 48 07.9 248 48 07.9	68 48 40.5 68 48 24.1	Traverse station 53 Substation 348	1,051.00 521.22	3.021602 2.717018
Traverse station 55 (Linier).	45 49 45.435 70 22 22.431	200 13 53.4	20 14 02.6	Traverse station 54	796.67	2.901280
Substation 349	45 49 16.872 70 22 54.820	218 24 15.9	38 24 39.1	Traverse station 55	1,125.38	3.051298
Mon. 349	45 49 19.038 70 23 03.308	290 02 58.2	110 03 04.3	Substation 349	195.05	2.290146
Traverse station 56	45 48 56.909 70 23 17.450	218 23 59.6 218 23 59.6	38 24 39.1 38 24 15.9	Traverse station 55 Substation 349	1,911.85 786.48	3.281455 2.895686
Mon. 350	45 48 51.691 70 23 18.564	188 29 25.1	8 29 25.9	Traverse station 56	162.88	2.211864
Traverse station 57	45 48 43.281 70 23 32.882	218 22 18.6	38 22 29.7	Traverse station 56	536.70	2.729728
Substation 351	45 48 32.605 70 23 39.940	204 48 52.3	24 48 57.4	Traverse station 57	363.13	2.560063
Mon. 351	45 48 33.120 70 23 45.846	277 06 41.5	97 06 45.7	Substation 351	128.51	2.108943
Substation 353	45 48 22.861 70 23 46.382	204 48 47.7	24 48 52.3	Substation 351	331.45	2.520415
Mon. 353	45 48 24.911 70 23 51.108	301 48 33.5	121 48 36.9	Substation 353	120.08	2.079458
Substation 354	45 48 10.936 70 23 54.265	204 48 42.1	24 48 47.7	Substation 353	405.63	2.608127
Mon. 354	45 48 08.911 70 23 46.849	111 19 51.3	291 19 46.0	Substation 354	171.91	2.235304
Substation 355	45 48 02.148 70 24 00.074	204 48 37.9	24 48 42.1	Substation 354	298.92	2.475559
Mon. 355	45 47 58.362 70 23 46.656	111 58 10.2	291 58 00.6	Substation 355	312.45	2.494781
Traverse station 58	45 47 45.789 70 24 10.885	204 48 30.2 204 48 30.2	24 48 57.4 24 48 37.9	Traverse station 57 Substation 355	1,955.54 556.41	3.291267 2.745395
Substation 356	45 47 44.183 70 24 15.548	243 47 08.5	63 47 11.8	Traverse station 58	112.25	2.050202
Mon. 356	45 47 46.600 70 24 13.647	28 49 43.7	208 49 42.3	Substation 356	85.16	1.930256

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Substation 357-----	45 47 40.204 70 24 27.099	243 47 00.2	63 47 08.5	Substation 356----	278.08	2.444168
Mon. 357-----	45 47 49.326 70 24 39.704	315 58 21.8	135 58 30.8	Substation 357----	391.70	2.592952
Substation 358-----	45 47 34.710 70 24 43.048	243 46 48.8	63 47 00.2	Substation 357----	383.97	2.584293
Mon. 358-----	45 47 43.711 70 25 03.258	302 28 50.6	122 29 05.1	Substation 358----	517.45	2.713871
Traverse station 59--	45 47 30.452 70 24 55.405	243 46 39.9 243 46 39.9	63 47 11.8 63 46 48.8	Traverse station 58-- Substation 358----	1,071.81 297.51	3.030116 2.473497
Substation 359-----	45 47 27.047 70 24 53.476	158 23 06.0	338 23 04.6	Traverse station 59--	113.08	2.053393
Mon. 359-----	45 47 26.939 70 24 54.581	262 02 44.8	82 02 45.6	Substation 359----	24.10	1.381929
Substation 360-----	45 47 07.244 70 24 42.261	158 23 14.0	338 23 06.0	Substation 359----	657.64	2.817988
Mon. 360-----	45 47 04.708 70 24 51.917	249 25 17.7	69 25 24.6	Substation 360----	222.80	2.347920
Traverse station 60--	45 46 48.964 70 24 31.911	158 23 21.4 158 23 21.4	338 23 04.6 338 23 14.0	Traverse station 59-- Substation 360----	1,377.77 607.05	3.139177 2.783222
Mon. 361-----	45 46 49.651 70 24 31.594	17 53 22.9	197 53 22.7	Traverse station 60--	22.30	1.348385
Substation 362-----	45 46 38.371 70 24 25.914	158 23 25.7	338 23 21.4	Traverse station 60--	351.77	2.546254
Mon. 362-----	45 46 38.898 70 24 26.451	324 29 25.3	144 29 25.7	Substation 362----	19.98	1.300509
Substation 363-----	45 46 31.297 70 24 21.910	158 23 28.6	338 23 25.7	Substation 362----	234.90	2.370883
Mon. 363-----	45 46 24.425 70 24 29.462	217 33 28.6	37 33 34.0	Substation 363----	267.65	2.427572
Substation 364-----	45 46 10.640 70 24 10.219	158 23 37.0	338 23 28.6	Substation 363----	685.97	2.836306
Mon. 364-----	45 46 06.133 70 24 25.059	246 32 31.4	66 32 42.0	Substation 364----	349.55	2.543510
Substation 365-----	45 45 56.106 70 24 01.994	158 23 42.9	338 23 37.0	Substation 364----	482.65	2.683631
Mon. 365-----	45 45 49.326 70 24 27.348	249 05 16.4	69 05 34.6	Substation 365----	586.50	2.768266
Substation 366-----	45 45 37.146 70 23 51.267	158 23 50.6	338 23 42.9	Substation 365----	629.58	2.799054
Mon. 366-----	45 45 30.981 70 24 09.997	244 48 47.0	64 49 00.4	Substation 366----	447.29	2.650591

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T B R A N C H O F S T. J O H N R I V E R A N D T H E H I G H L A N D S T O T H E C A N A D I A N P A C I F I C R A I L W A Y C R O S S I N G—contd.						
	° ' "	° ' "	° ' "			
Traverse station 61_	45 45 15.699 70 23 39.136	158 23 59.2 158 23 59.2	338 23 21.4 338 23 50.6	Traverse station 60_	3,097.06	3.490950
				Substation 366_	712.19	2.852595
Mon. 367_	45 45 15.593 70 23 39.848	257 59 20.0	77 59 20.5	Traverse station 61_	15.73	1.196640
Substation 368_	45 44 49.923 70 23 32.798	170 14 00.6	350 13 56.1	Traverse station 61_	807.51	2.907148
Mon. 368_	45 44 49.605 70 23 23.086	92 40 39.8	272 40 32.8	Substation 368_	210.16	2.322553
Substation 369_	45 44 24.755 70 23 26.612	170 14 05.0	350 14 00.6	Substation 368_	788.46	2.896780
Mon. 369_	45 44 23.626 70 23 39.340	262 46 38.4	82 46 47.5	Substation 369_	277.36	2.443049
Traverse station 62_	45 44 15.893 70 23 24.434	170 14 06.6 170 14 06.6	350 13 56.1 350 14 05.0	Traverse station 61_	1,873.57	3.272671
				Substation 369_	277.60	2.443420
Substation 370_	45 44 11.104 70 23 26.825	199 16 18.9	19 16 20.6	Traverse station 62_	156.62	2.194847
Mon. 370_	45 44 11.219 70 23 26.859	348 19 29.9	168 19 29.9	Substation 370_	3.63	0.559271
Substation 371_	45 44 10.818 70 23 26.968	199 16 18.8	19 16 18.9	Substation 370_	9.37	0.971647
Mon. 371_	45 44 09.349 70 23 07.723	96 13 17.6	276 13 03.8	Substation 371_	418.54	2.621737
Substation 373_	45 43 50.860 70 23 36.932	199 16 11.7	19 16 18.8	Substation 371_	652.75	2.814746
Substation 372 and 374.	45 43 46.439 70 23 39.139	199 16 10.1	19 16 11.7	Substation 373_	144.61	2.160192
Mon. 372_	45 43 55.953 70 23 13.612	61 58 53.2	241 58 34.9	Substation 372 and 374.	625.24	2.796044
Mon. 373_	45 43 46.518 70 23 23.056	114 04 30.6	294 04 20.7	Substation 373_	328.61	2.516686
Mon. 374_	45 43 45.249 70 23 49.259	260 28 14.1	80 28 21.3	Substation 372 and 374.	221.89	2.346143
Traverse station 63_	45 43 10.296 70 23 57.176	199 15 57.2 199 15 57.2	19 16 20.6 19 16 10.1	Traverse station 62_	2,145.41	3.331511
				Substation 372 and 374.	1,182.07	3.072643
Substation 375_	45 43 09.043 70 24 01.050	245 12 56.6	65 12 59.4	Traverse station 63_	92.28	1.965103
Mon. 375_	45 43 11.040 70 24 05.648	301 47 59.6	121 48 02.9	Substation 375_	117.00	2.068188
Substation 376_	45 42 59.986 70 24 29.047	245 12 36.6	65 12 56.6	Substation 375_	666.96	2.824103
Mon. 376_	45 43 00.884 70 24 29.554	338 24 46.2	158 24 46.6	Substation 376_	29.81	1.474301



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Substation 377-----	45 42 53.511 70 24 49.059	245 12 22.3	65 12 36.6	Substation 376----	476.75	2.678294
Mon. 377-----	45 42 59.764 70 24 49.080	359 51 52.3	179 51 52.3	Substation 377-----	193.04	2.285652
Substation 378-----	45 42 53.297 70 24 49.720	245 12 21.8	65 12 22.3	Substation 377-----	15.74	1.196977
Mon. 378-----	45 42 55.120 70 24 51.896	320 05 51.5	140 05 53.1	Substation 378-----	73.36	1.865445
Substation 380-----	45 42 35.567 70 25 44.493	245 11 42.6	65 12 21.8	Substation 378-----	1,305.06	3.115629
Substation 379-----	45 42 34.534 70 25 47.682	245 11 40.3	65 11 42.6	Substation 380-----	75.99	1.880739
Mon. 379-----	45 42 33.404 70 25 47.018	157 37 15.8	337 37 15.3	Substation 379-----	37.72	1.576561
Mon. 380-----	45 42 26.369 70 25 34.635	143 05 57.2	323 05 50.1	Substation 380-----	355.12	2.550369
Traverse station 64--	45 42 21.411 70 26 28.200	245 11 11.3 245 11 11.3	65 12 59.4 65 11 40.3	Traverse station 63-- Substation 379-----	3,598.36 965.58	3.556105 2.984790
Mon. 381-----	45 42 19.047 70 26 29.245	197 12 27.8	17 12 28.5	Traverse station 64--	76.41	1.883170
Substation 382-----	45 42 18.711 70 27 13.492	265 07 54.6	85 08 27.0	Traverse station 64--	983.30	2.992688
Mon. 382-----	45 42 23.411 70 27 17.076	331 52 59.1	151 53 01.7	Substation 382-----	164.53	2.216233
Substation 383-----	45 42 15.598 70 28 05.595	265 07 17.3	85 07 54.6	Substation 382-----	1,131.20	3.053541
Mon. 383-----	45 42 23.750 70 27 58.043	32 59 17.7	212 59 12.3	Substation 383-----	300.05	2.477194
Traverse station 65--	45 42 15.533 70 28 06.684	265 07 16.5 265 07 16.5	85 08 27.0 85 07 17.3	Traverse station 64-- Substation 383-----	2,138.14 23.64	3.330037 1.373592
Traverse station 66--	45 41 20.311 70 29 39.370	229 37 11.3	49 38 17.6	Traverse station 65--	2,632.09	3.420301
Mon. 384-----	45 41 19.897 70 29 40.595	244 14 32.9	64 14 33.8	Traverse station 66--	29.44	1.468939
Substation 385-----	45 41 11.245 70 29 55.753	231 42 29.1	51 42 40.8	Traverse station 66--	451.68	2.654831
Mon. 385-----	45 41 09.161 70 29 49.720	116 14 22.1	296 14 17.8	Substation 385-----	145.54	2.162997
Traverse station 67--	45 40 47.129 70 30 39.323	231 41 57.9 231 41 57.9	51 42 40.8 51 42 29.1	Traverse station 66-- Substation 385-----	1,653.10 1,201.42	3.218298 3.079693
Substation 386-----	45 40 24.313 70 31 07.244	220 37 22.9	40 37 42.9	Traverse station 67--	928.11	2.967601

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Mon. 386-----	45 40 23.869 70 31 06.590	134 05 43.4	314 05 42.9	Substation 386----	19.71	1.294591
Substation 387-----	45 40 14.132 70 31 19.700	220 37 14.0	40 37 22.9	Substation 386----	414.11	2.617118
Mon. 387-----	45 40 13.856 70 31 11.821	92 51 57.1	272 51 51.5	Substation 387----	170.76	2.232391
Traverse station 68--	45 39 59.436 70 31 37.677	220 37 01.2 220 37 01.2	40 37 42.9 40 37 14.0	Traverse station 67-- Substation 387-----	1,939.94 597.71	3.287788 2.776492
Substation 388-----	45 39 54.629 70 32 09.546	257 51 21.1	77 51 43.9	Traverse station 68--	705.66	2.848596
Mon. 388-----	45 40 09.423 70 32 15.959	343 05 32.0	163 05 36.6	Substation 388-----	477.37	2.678851
Substation 389-----	45 39 48.604 70 32 49.465	257 50 52.5	77 51 21.1	Substation 388-----	883.96	2.946433
Mon. 389-----	45 39 58.253 70 32 51.937	349 48 58.2	169 49 00.0	Substation 389-----	302.66	2.480957
Substation 390-----	45 39 42.754 70 33 28.196	257 50 24.8	77 50 52.5	Substation 389-----	857.72	2.933344
Mon. 390-----	45 39 51.220 70 33 38.990	318 12 15.9	138 12 23.6	Substation 390-----	350.60	2.544816
Traverse station 69=H	45 39 42.134 70 33 32.294	257 50 21.9 257 50 21.9	77 51 43.9 77 50 24.8	Traverse station 68-- Substation 390-----	2,538.09 90.75	3.404507 1.957851
Substation 391-----	45 39 14.513 70 34 11.678	224 59 38.6	45 00 06.8	Traverse station 69--	1,205.91	3.081316
Mon. 391-----	45 39 12.752 70 34 04.899	110 19 42.6	290 19 37.8	Substation 391-----	156.52	2.194578
Substation 392-----	45 39 00.936 70 34 31.031	224 59 24.8	44 59 38.6	Substation 391-----	592.69	2.772827
Mon. 392-----	45 38 56.292 70 34 24.355	134 45 55.8	314 45 51.0	Substation 392-----	203.59	2.308755
Substation 393-----	45 38 31.726 70 35 12.655	224 58 55.0	44 59 24.8	Substation 392-----	1,275.04	3.105522
Mon. 393-----	45 38 24.643 70 35 03.705	138 26 52.6	318 26 46.2	Substation 393-----	292.22	2.465706
Substation 394-----	45 37 54.400 70 36 05.818	224 58 17.0	44 58 55.0	Substation 393-----	1,629.04	3.211933
Mon. 394-----	45 37 44.146 70 35 54.289	141 43 59.4	321 43 51.2	Substation 394-----	403.23	2.605550
Traverse station G--	45 37 37.789 70 36 29.468	224 58 00.1 224 58 00.1	45 00 06.8 44 58 17.0	Traverse station 69-- Substation 394-----	5,427.57 724.89	3.734605 2.860273
Substation 395-----	45 37 19.410 70 36 59.282	228 41 49.3	48 42 10.6	Traverse station G--	859.70	2.934346
Mon. 395-----	45 37 10.403 70 36 47.792	138 10 07.1	318 09 58.9	Substation 395-----	373.22	2.571963

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
PRECISE TRAVERSE, S O U T H W E S T BRANCH OF ST. JOHN RIVER AND THE HIGHLANDS TO THE CANADIAN PACIFIC RAILWAY CROSSING—contd.						
	° ' "	° ' "	° ' "			
Traverse station F	45 36 45.471 70 37 54.314	228 41 10.0 228 41 10.0	48 42 10.6 48 41 49.3	Traverse station G Substation 395	2,447.00 1,587.31	3.388634 3.200661
Substation 396	45 36 43.372 70 37 56.847	220 15 27.6	40 15 29.4	Traverse station F	84.92	1.929020
Mon. 396	45 36 36.984 70 37 38.904	116 53 59.1	296 53 46.3	Substation 396	435.96	2.639450
Substation P	45 36 27.692 70 38 15.763	220 15 14.1	40 15 27.6	Substation 396	634.32	2.802309
Substation 397	45 36 21.723 70 38 22.963	220 15 08.9	40 15 14.1	Substation P	241.48	2.382872
Substation M	45 36 21.907 70 38 24.270	225 54 13.2 281 21 06.9	45 54 19.3 101 21 07.8	Substation P Substation 397	256.7 28.9	2.409385 1.460481
Substation N	45 36 23.163 70 38 33.150	249 38 09.5 281 23 21.5	69 38 21.9 101 23 27.8	Substation P Substation M	401.9 196.3	2.604110 2.292939
Mon. 397	45 36 24.656 70 38 43.711	281 23 13.0	101 23 20.5	Substation N	233.46	2.368204
Traverse station E	45 35 54.196 70 38 56.159	220 14 45.2 220 14 45.2	40 15 29.4 40 15 08.9	Traverse station F Substation 397	2,074.17 1,113.45	3.316843 3.046671
Substation 398	45 35 39.113 70 39 05.450	203 23 04.6	23 23 11.2	Traverse station E	507.33	2.705290
Mon. 398	45 35 41.107 70 39 11.441	295 21 50.3	115 21 54.6	Substation 398	143.72	2.157517
Traverse station D	45 35 27.300 70 39 12.725	203 22 59.4 203 22 59.4	23 23 11.2 23 23 04.6	Traverse station E Substation 398	904.66 397.33	2.956485 2.599154
Substation 399	45 34 51.415 70 40 00.946	223 19 52.9	43 20 27.3	Traverse station D	1,523.20	3.182757
Mon. 399	45 34 54.133 70 40 03.146	330 23 13.8	150 23 15.4	Substation 399	96.53	1.984665
Substation 400	45 34 07.596 70 40 59.795	223 19 10.8	43 19 52.9	Substation 399	1,859.64	3.269429
Mon. 400	45 34 09.493 70 41 01.872	322 25 54.3	142 25 55.8	Substation 400	73.87	1.868463
Traverse station C	45 34 02.572 70 41 06.539	223 19 06.0 223 19 06.0	43 20 27.3 43 19 10.8	Traverse station D Substation 400	3,596.01 213.17	3.555821 2.328728
Traverse station B	45 33 38.463 70 41 19.181	200 13 09.1	20 13 18.1	Traverse station C	793.21	2.899386
Substation 401	45 33 30.161 70 41 19.936	183 39 14.2	3 39 14.7	Traverse station B	256.84	2.409660
Mon. 401	45 33 30.858 70 41 09.747	84 26 28.5	264 26 21.2	Substation 401	222.03	2.346411
Traverse station A	45 32 48.875 70 41 23.687	183 39 11.5 183 39 11.5	3 39 14.7 3 39 14.2	Traverse station B Substation 401	1,534.02 1,277.16	3.185832 3.106245



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME TRIANGULATION, HALLS STREAM						
Ref. Mon. 512-6	° ' " 45 01 03.49 71 30 13.01	° ' " 292 41 00	° ' " 112 41 46	Beecher	1,554.7	3.19165
Tank	45 00 50.16 71 30 34.43	228 43 32 275 38 16	48 43 48 95 39 18	Ref. Mon. 512-6 Beecher	623.9 1,554.7	2.79510 3.28164
Lot	45 00 47.87 71 30 04.71	96 12 56 159 21 15	276 12 35 339 21 09	Tank Ref. Mon. 512-6	654.5 515.5	2.81592 2.71220
Chaloux	45 00 59.19 71 29 50.67	41 20 08 73 47 12 105 11 56	221 19 58 253 46 41 285 11 40	Lot Tank Ref. Mon. 512-6	465.4 997.8 506.9	2.66787 2.99903 2.70490
Rock	45 01 18.83 71 30 04.59	21 16 30 36 26 02 310 38 38 333 18 54	201 16 24 216 25 41 130 39 19 153 19 04	Ref. Mon. 512-6 Tank Beecher Chaloux	508.1 1,100.0 1,647.5 678.7	2.70598 3.04140 3.21682 2.83165
Beecher Falls south base.	45 01 22.92 71 29 32.97	27 53 10 55 37 56 79 40 33	207 52 58 235 37 27 259 40 11	Chaloux Ref. Mon. 512-6 Rock	828.8 1,062.2 703.7	2.91843 3.02620 2.84740
Beecher Falls north base.	45 01 37.15 71 29 28.95	11 20 30 54 04 36	191 20 27 234 04 11	Beecher Falls south base. Rock	448.07 963.7	2.65135 2.98396
Van	45 01 47.55 71 30 00.69	5 30 30 294 47 24 321 24 15	185 30 28 114 47 46 141 24 34	Rock Beecher Falls north base. Beecher Falls south base.	890.6 765.4 972.7	2.94967 2.88391 2.98800
Van reference mark	45 01 47.62 71 30 00.67	10 05	190 05	Van	2.42	0.38438
Pasture	45 02 00.95 71 29 22.43	10 59 39 63 42 51	190 59 34 243 42 24	Beecher Falls north base. Van	748.5 934.2	2.87418 2.97044
Ref. Mon. 512-4	45 02 04.54 71 29 59.06	3 53 04 277 51 41 322 03 15	183 53 03 97 52 07 142 03 36	Van Pasture Beecher Falls north base.	525.8 809.5 1,072.1	2.72078 2.90824 3.03025
Advent	45 02 32.25 71 30 25.94	232 07 11 304 47 39 325 28 51	52 08 17 124 48 24 145 29 10	Hill Pasture Ref. Mon. 512-4	2,613.5 1,692.9 1,038.2	3.41722 3.22864 3.01627
Meadow	45 02 31.53 71 29 43.22	91 22 18 334 15 34	271 21 48 154 15 49	Advent Pasture	935.3 1,047.8	2.97096 3.02029
Center	45 02 12.71 71 29 54.16	23 01 53 130 56 49 202 24 53 297 34 31	203 01 49 310 56 26 22 25 01 117 34 54	Ref. Mon. 512-4 Advent Meadow Pasture	273.9 920.7 628.5 783.8	2.43763 2.96410 2.79830 2.89420
Bryant	45 02 44.64 71 29 35.16	23 32 26 71 00 34 348 19 40	203 32 20 250 59 58 168 19 49	Meadow Advent Pasture	441.7 1,175.4 1,377.3	2.64510 3.07019 3.13902
Shift	45 03 16.17 71 30 40.84	264 02 57 317 31 59 346 28 20	84 04 15 137 32 40 166 28 30	Hill Meadow Advent	2,401.8 1,868.1 1,394.5	3.38054 3.27139 3.14442
Cherry	45 02 58.27 71 29 59.69	35 33 59 121 32 07 241 42 31 336 24 16	215 33 41 301 31 38 61 43 19 156 24 28	Advent Shift Hill Meadow	987.6 1,056.4 1,690.4 901.0	2.99456 3.02384 3.22800 2.95471

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME TRIANGULATION, HALLS STREAM—continued						
Fall	° ' " 45 04 08.41 71 30 05.98	° ' " 8 22 18 193 48 50 309 59 28 356 21 56	° ' " 188 22 04 13 49 03 130 00 21 176 22 00	Advent Wheeler Hill Cherry	3,000.5 1,724.8 2,122.4 2,169.6	3.47720 3.23674 3.32682 3.33638
Pond	45 03 55.79 71 29 41.94	12 20 34 46 30 08 126 31 55 176 50 28 311 32 16	192 20 22 226 29 26 306 31 38 356 50 24 131 32 52	Cherry Shift Fall Wheeler Hill	1,817.6 1,776.8 654.5 2,067.7 1,469.6	3.25951 3.24965 2.81591 3.31548 3.16720
Gendreau	45 05 47.41 71 28 16.94	9 45 13 37 58 42 55 00 52	189 44 48 217 57 25 234 59 48	Hill Fall Wheeler	4,484.9 3,876.3 2,408.0	3.65175 3.58842 3.38166
Gendreau reference mark.	45 05 47.34 71 28 16.88	148 30	328 30	Gendreau	2.56	0.40778
Cone	45 04 42.24 71 28 42.76	60 10 05 114 08 12 195 40 45	240 09 06 294 07 27 15 41 03	Fall Wheeler Gendreau	2,098.4 1,542.9 2,089.5	3.32189 3.18835 3.32005
Caron	45 05 17.06 71 27 39.70	52 04 13 80 57 20 139 00 19	232 03 28 260 55 50 318 59 53	Cone Wheeler Gendreau	1,748.7 2,822.3 1,241.1	3.24271 3.45060 3.09382
Cedar	45 05 54.41 71 27 44.84	72 53 11 354 26 01	252 52 48 174 26 04	Gendreau Caron	734.3 1,158.3	2.86590 3.06382
Cedar reference mark	45 05 54.33 71 27 44.84	1 06	181 06	Cedar	2.41	0.38164
Ledge	45 06 11.77 71 27 30.48	6 48 39 30 21 40 53 29 04	186 48 32 210 21 30 233 28 31	Caron Cedar Gendreau	1,700.9 621.3 1,264.0	3.23068 2.79328 3.10174
Old	45 05 57.10 71 27 23.90	79 42 56 162 21 52	259 42 42 342 21 47	Cedar Ledge	465.5 475.3	2.66792 2.67695
Barn	45 06 03.32 71 27 11.26	55 10 51 69 27 14 121 50 00	235 10 42 249 26 51 301 49 47	Old Cedar Ledge	336.4 784.1 494.6	2.52690 2.89437 2.69422
Poplar	45 06 16.37 71 27 26.36	32 25 05 320 40 17	212 25 02 140 40 28	Ledge Barn	168.2 520.7	2.22576 2.71662
Path	45 06 11.22 71 27 00.18	44 50 24 91 29 29 105 32 49	224 50 16 271 29 07 285 32 30	Barn Ledge Poplar	343.6 662.7 594.0	2.53603 2.82129 2.77378
Stump (south base)	45 06 27.02 71 27 14.31	38 41 29 327 40 08 354 47 47	218 41 20 147 40 18 174 47 49	Poplar Path Barn	421.3 577.6 734.7	2.62461 2.76160 2.86611
Corner	45 06 18.66 71 26 49.66	45 02 47 84 58 29 115 36 07	225 02 40 264 58 03 295 35 49	Path Poplar Stump	325.2 805.5 597.7	2.51219 2.90607 2.77647
House	45 06 40.56 71 26 42.50	13 01 22 59 00 21	193 01 17 238 59 58	Corner Stump	693.8 811.2	2.84126 2.90911
Paquette (north base).	45 06 49.30 71 26 57.53	28 04 29 309 24 53 349 41 02	208 04 17 129 25 04 169 41 07	Stump House Corner	779.44 425.2 961.5	2.89178 2.62860 2.98296
Birch	45 06 57.33 71 26 37.85	11 07 06 60 03 37	191 07 02 240 03 24	House Paquette	527.7 496.5	2.72239 2.69592

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MINOR SCHEME TRIANGULATION, HALLS STREAM continued	° ' "	° ' "	° ' "			
Road-----	45 06 46.95 71 26 25.16	62 30 42 95 52 15 139 07 58	242 30 30 275 51 52 319 07 49	House----- Paquette----- Birch-----	427. 4 711. 3 423. 9	2. 63080 2. 85206 2. 62722
Bank-----	45 07 02.34 71 26 28.42	53 08 31 351 28 47	233 08 24 171 28 49	Birch----- Road-----	257. 7 480. 4	2. 41105 2. 68159
Hazel-----	45 07 01.68 71 26 07.83	39 48 39 92 36 17	219 48 26 272 36 02	Road----- Bank-----	591. 8 450. 5	2. 77219 2. 65372
N-----	45 06 58.66 71 26 28.78	78 19 04 184 01 49 258 30 23 347 38 45	258 18 57 4 01 49 78 30 38 167 38 48	Birch----- Bank----- Hazel----- Road-----	202. 4 113. 9 467. 5 370. 1	2. 30611 2. 05642 2. 66976 2. 56829
Brush-----	45 07 13.73 71 26 20.69	25 38 12 322 55 30	205 38 07 142 55 39	Bank----- Hazel-----	390. 2 466. 5	2. 59126 2. 66887
Saint-----	45 07 12.86 71 25 37.10	62 48 08 73 51 34 91 37 47	242 47 46 253 50 57 271 37 16	Hazel----- Bank----- Brush-----	755. 1 1, 167. 7 953. 2	2. 87803 3. 06734 2. 97920
Thicket-----	45 07 27.38 71 26 16.86	11 14 58 297 16 51	191 14 55 117 17 20	Brush----- Saint-----	429. 5 977. 8	2. 63293 2. 99026
Cyr-----	45 07 20.93 71 25 31.55	25 56 00 78 18 48 101 21 53	205 55 56 258 18 13 281 21 21	Saint----- Brush----- Thicket-----	277. 2 1, 096. 8 1, 010. 0	2. 44281 3. 04013 3. 00433
Shack-----	45 07 33.19 71 25 50.56	72 40 07 312 19 33	252 39 48 132 19 46	Thicket----- Cyr-----	602. 2 561. 9	2. 77971 2. 74965
Cliff-----	45 07 29.55 71 25 30.57	4 36 28 86 13 08 104 26 25	184 36 27 266 12 36 284 26 10	Cyr----- Thicket----- Shack-----	266. 8 1, 013. 9 451. 1	2. 42611 3. 00598 2. 65425
Stub-----	45 07 41.98 71 26 11.69	14 05 09 293 07 13 306 31 11	194 05 05 113 07 42 126 31 39	Thicket----- Cliff----- Cyr-----	464. 6 977. 0 1, 091. 5	2. 66710 2. 98991 3. 03802
Jim-----	45 07 45.18 71 25 35.18	42 14 21 348 13 03	222 14 10 168 13 07	Shack----- Cliff-----	500. 0 493. 1	2. 69901 2. 69291
Burnt-----	45 07 46.16 71 25 49.61	2 57 18 275 29 11 320 56 56	182 57 17 95 29 21 140 57 10	Shack----- Jim----- Cliff-----	401. 1 316. 9 660. 6	2. 60320 2. 50092 2. 81991
White-----	45 07 52.96 71 25 45.57	22 48 46 316 36 43	202 48 43 136 36 50	Burnt----- Jim-----	227. 8 330. 6	2. 35755 2. 51935
Fir-----	45 07 53.99 71 25 38.72	44 34 26 78 04 18 344 06 31	224 34 18 258 04 13 164 06 33	Burnt----- White----- Jim-----	339. 2 153. 0 282. 7	2. 53041 2. 18474 2. 45135
Elm-----	45 07 58.24 71 25 40.17	35 58 50 346 27 55	215 58 46 166 27 56	White----- Fir-----	201. 1 134. 9	2. 30341 2. 12986
Rotten-----	45 07 57.41 71 25 47.60	261 01 48 298 32 38 342 07 49	81 01 53 118 32 44 162 07 50	Elm----- Fir----- White-----	164. 4 220. 7 144. 1	2. 21580 2. 34389 2. 15854
Spruce-----	45 08 05.10 71 25 44.89	13 59 12 334 00 46	193 59 10 154 00 49	Rotten----- Elm-----	244. 6 235. 6	2. 38852 2. 37213
Brook-----	45 08 04.44 71 25 53.03	263 33 05 304 17 41 331 21 36	83 33 11 124 17 50 151 21 40	Spruce----- Elm----- Rotten-----	178. 9 340. 2 247. 6	2. 25266 2. 53168 2. 39372



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MINOR SCHEME TRIANGULATION, HALLS STREAM— continued						
	° ' "	° ' "	° ' "			
Hall-----	45 08 10.90 71 25 49.99	18 23 07 328 06 49	198 23 05 148 06 53	Brook----- Spruce-----	210. 1 211. 1	2. 32239 2. 32454
Bridge-----	45 08 10.37 71 25 56.03	262 50 59 303 45 05 340 13 43	82 51 03 123 45 13 160 13 45	Hall----- Spruce----- Brook-----	133. 0 292. 9 194. 3	2. 12386 2. 46666 2. 28838
Woods-----	45 08 17.04 71 25 55.12	5 33 34 329 27 06	185 33 33 149 27 09	Bridge----- Hall-----	207. 1 220. 2	2. 31625 2. 34275
Stream-----	45 08 14.60 71 26 00.34	236 31 09 296 46 23 324 13 31	56 31 13 116 46 30 144 13 34	Woods----- Hall----- Bridge-----	136. 9 253. 2 161. 0	2. 13643 2. 40354 2. 20686
Camp-----	45 08 18.79 71 26 05.22	283 41 39 320 29 50	103 41 46 140 29 53	Woods----- Stream-----	227. 3 167. 6	2. 35655 2. 22432
Pole-----	45 08 22.13 71 26 00.95	42 10 05 320 55 22 356 44 33	222 10 02 140 55 26 176 44 33	Camp----- Woods----- Stream-----	139. 1 202. 1 232. 8	2. 14339 2. 30565 2. 36702
Cut-----	45 08 34.92 71 26 04.62	1 31 26 348 31 55	181 31 26 168 31 58	Camp----- Pole-----	498. 3 403. 1	2. 69751 2. 60538
Duran-----	45 08 37.11 71 26 16.76	284 15 53 323 13 58 335 58 09	104 16 01 143 14 09 155 58 17	Cut----- Pole----- Camp-----	273. 9 577. 4 619. 3	2. 43755 2. 76144 2. 79190
Leau-----	45 08 46.64 71 26 09.74	27 33 02 342 47 08	207 32 57 162 47 11	Duran----- Cut-----	331. 7 378. 5	2. 52071 2. 57808
Bird-----	45 08 43.52 71 25 58.86	25 21 47 63 10 54 112 03 11	205 21 43 243 10 42 292 03 04	Cut----- Duran----- Leau-----	293. 5 438. 3 256. 5	2. 46767 2. 64178 2. 40911
Ref. Mon. 511-4----	45 08 53.99 71 25 59.45	44 43 00 357 42 14	224 42 53 177 42 14	Leau----- Bird-----	319. 5 323. 6	2. 50444 2. 50999
Fence-----	45 08 55.14 71 26 08.61	5 22 58 280 01 47 329 17 44	185 22 57 100 01 53 149 17 50	Leau----- Ref. Mon. 511-4---- Bird-----	263. 6 203. 2 417. 2	2. 42089 2. 30783 2. 62034
Blind-----	45 09 07.63 71 25 47.57	31 39 39 50 00 15	211 39 30 230 00 00	Ref. Mon. 511-4---- Fence-----	494. 7 600. 1	2. 69436 2. 77821
Brown-----	45 09 01.51 71 25 43.10	56 59 11 70 33 35 152 43 08	236 58 59 250 33 17 332 43 05	Ref. Mon. 511-4---- Fence----- Blind-----	425. 9 590. 9 212. 7	2. 62934 2. 77152 2. 32772
Mink-----	45 09 12.69 71 25 35.47	25 47 58 59 25 51	205 47 52 239 25 42	Brown----- Blind-----	383. 4 307. 0	2. 58362 2. 48713
Switch-----	45 09 13.95 71 25 40.07	9 47 35 40 01 51 291 05 53	189 47 32 220 01 45 111 05 56	Brown----- Blind----- Mink-----	389. 6 254. 6 107. 8	2. 59067 2. 40584 2. 03262
Valley-----	45 09 19.40 71 25 33.23	13 17 12 41 37 12	193 17 10 221 37 07	Mink----- Switch-----	212. 7 225. 0	2. 32782 2. 35224
Ref. Mon. 511-3----	45 09 24.04 71 25 36.43	14 18 29 333 59 04 356 33 18	194 18 26 153 59 06 176 33 18	Switch----- Valley----- Mink-----	321. 6 159. 6 351. 1	2. 50731 2. 20292 2. 54538
Lumber-----	45 09 27.81 71 25 28.91	19 56 33 54 41 21	199 56 30 234 41 16	Valley----- Ref. Mon. 511-3----	276. 3 201. 2	2. 44134 2. 30370

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME TRIANGULATION, HALLS STREAM—continued						
	° ' "	° ' "	° ' "			
Ref. Mon. 511-2	45 09 27.45 71 25 34.89	17 47 09 265 06 26 351 42 04	197 47 08 85 06 30 171 42 05	Ref. Mon. 511-3 Lumber Valley	110.4 131.0 251.2	2.04307 2.11712 2.39996
Ref. Mon. 511-1	45 09 35.85 71 25 30.74	19 14 06 350 51 05	199 14 03 170 51 06	Ref. Mon. 511-2 Lumber	274.7 251.4	2.43889 2.40039
Company	45 09 35.66 71 25 24.52	21 36 00 41 45 56 92 26 25	201 35 57 221 45 49 272 26 21	Lumber Ref. Mon. 511-2 Ref. Mon. 511-1	260.7 340.0 136.1	2.41620 2.53147 2.13378
Culvert	45 09 41.42 71 25 34.34	177 34 06 309 38 01 335 25 58	357 34 05 129 38 08 155 26 01	King Company Ref. Mon. 511-1	463.2 278.6 189.0	2.66573 2.44492 2.27648
Alder	45 09 45.72 71 25 25.62	20 09 43 55 07 03 147 31 04 355 33 50	200 09 40 235 06 57 327 30 57 175 33 51	Ref. Mon. 511-1 Culvert King Company	324.6 232.2 391.2 311.4	2.51129 2.36577 2.59237 2.49331
Ref. Mon. 510-26 (Robert's east base).	45 10 13.38 71 25 14.48	197 32 16	17 32 22	Knoll	557.6	2.74630
Robert's west base	45 10 17.86 71 25 25.59	226 13 05 299 41 28	46 13 19 119 41 36	Knoll Ref. Mon. 510-26	568.6 279.14	2.75477 2.44582
Clay	45 10 07.89 71 25 28.35	23 00 38 191 05 15 240 45 06	203 00 33 11 05 17 60 45 16	King Robert's west base Ref. Mon. 510-26	385.1 313.7 347.1	2.58557 2.49650 2.54041
Ref. Mon. 510-27	45 10 04.86 71 25 19.38	53 00 21 115 30 45 161 20 23 202 07 45	233 00 10 295 30 38 341 20 19 22 07 48	King Clay Robert's west base Ref. Mon. 510-26	433.7 217.0 423.6 283.9	2.63720 2.33650 2.62692 2.45324
Swamp	45 09 56.89 71 25 25.31	1 09 17 22 27 30 86 06 17 168 55 28 207 43 10	181 09 17 202 27 24 266 06 10 348 55 26 27 43 14	Alder Culvert King Clay Ref. Mon. 510-27	344.8 516.7 217.5 346.1 278.1	2.53760 2.71325 2.33752 2.53923 2.44424
Ref. Mon. 510-25	45 10 27.70 71 24 57.29	40 21 43 63 50 32 113 24 53	220 21 31 243 50 12 293 24 46	Ref. Mon. 510-26 Robert's west base Knoll	579.8 688.5 226.1	2.76329 2.83790 2.35424
Ref. Mon. 510-24	45 10 40.36 71 25 02.65	16 43 28 343 20 09	196 43 25 163 20 13	Knoll Ref. Mon. 510-25	314.3 408.0	2.49739 2.61066
Willow	45 10 39.56 71 24 50.25	22 45 36 52 34 25 95 12 58	202 45 31 232 34 13 275 12 49	Ref. Mon. 510-25 Knoll Ref. Mon. 510-24	397.1 454.7 271.7	2.59888 2.65771 2.43414
Ref. Mon. 510-23	45 10 48.19 71 24 59.32	16 43 25 323 24 29	196 43 23 143 24 36	Ref. Mon. 510-24 Willow	252.6 332.0	2.40239 2.52117
Lower	45 10 50.96 71 24 48.21	7 13 10 43 55 07 70 35 32	187 13 09 223 54 57 250 35 24	Willow Ref. Mon. 510-24 Ref. Mon. 510-23	354.8 454.4 257.1	2.55004 2.65745 2.41013
Ref. Mon. 510-22	45 10 55.82 71 25 01.57	297 13 22 348 13 15	117 13 32 168 13 17	Lower Ref. Mon. 510-23	327.9 240.5	2.51578 2.38116
Flat	45 10 56.72 71 24 49.90	37 58 30 83 44 53 348 16 26	217 58 24 263 44 45 168 16 28	Ref. Mon. 510-23 Ref. Mon. 510-22 Lower	334.1 256.2 181.7	2.52387 2.40856 2.25939

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MINOR SCHEME TRIANGULATION, HALLS STREAM— continued						
	° ' "	° ' "	° ' "			
Ref. Mon. 510-21---	45 11 06.79 71 24 57.39	15 04 53 332 15 35	195 04 50 152 15 40	Ref. Mon. 510-22- Flat-----	350.7 351.1	2.54495 2.54540
Steep-----	45 11 07.12 71 24 45.48	16 44 54 45 11 55 87 45 21	196 44 51 225 11 44 267 45 13	Flat----- Ref. Mon. 510-22- Ref. Mon. 510-21-	335.1 495.0 260.2	2.52522 2.69462 2.41527
Ref. Mon. 510-20---	45 11 14.47 71 25 00.80	304 09 43 342 33 28	124 09 54 162 33 31	Steep----- Ref. Mon. 510-21-	404.3 248.6	2.60666 2.39557
Point-----	45 11 18.74 71 24 28.37	46 09 50 79 28 08	226 09 38 259 27 45	Steep----- Ref. Mon. 510-20-	517.9 720.1	2.71421 2.85742
Ref. Mon. 510-19---	45 11 26.87 71 24 31.75	26 11 02 42 05 08 58 54 09 343 36 41	206 10 52 222 04 50 238 53 48 163 36 43	Steep----- Ref. Mon. 510-21- Ref. Mon. 510-20- Point-----	679.3 835.1 740.7 261.5	2.83206 2.92174 2.86962 2.41755
Yard-----	45 11 31.47 71 24 21.97	19 34 40 56 22 24	199 34 36 236 22 17	Point----- Ref. Mon. 510-19-	417.1 256.4	2.62019 2.40900
Engine-----	45 11 33.97 71 24 29.27	13 52 19 295 51 13 357 36 26	193 52 17 115 51 18 177 36 27	Ref. Mon. 510-19- Yard----- Point-----	225.8 177.1 470.6	2.35381 2.24825 2.67264
Farm-----	45 11 39.75 71 24 24.71	29 10 47 346 50 20	209 10 44 166 50 22	Engine----- Yard-----	204.3 262.5	2.31030 2.41916
Ref. Mon. 510-18 (south base).	45 11 37.03 71 24 17.63	28 54 38 44 30 35 69 37 33 118 31 12	208 54 35 224 30 25 249 37 25 298 31 07	Yard----- Ref. Mon. 510-19- Engine----- Farm-----	196.1 439.8 271.1 175.9	2.29241 2.64328 2.43318 2.24527
Ash-----	45 11 47.94 71 24 17.61	0 02 34 31 27 18	180 02 34 211 27 13	Ref. Mon. 510-18- Farm-----	337.1 296.7	2.52770 2.47226
Ref. Mon. 510-17 (north base).	45 11 46.84 71 24 10.74	26 22 48 54 17 40 102 44 18	206 22 43 234 17 30 282 44 13	Ref. Mon. 510-18- Farm----- Ash-----	338.36 375.5 153.9	2.52938 2.57458 2.18715
Ref. Mon. 510-16---	45 11 54.25 71 24 10.17	3 06 39 39 50 36	183 06 39 219 50 31	Ref. Mon. 510-17- Ash-----	229.0 253.6	2.35986 2.40423
Across-----	45 11 58.39 71 24 15.59	7 49 25 317 12 01 343 27 56	187 49 24 137 12 05 163 28 00	Ash----- Ref. Mon. 510-16- Ref. Mon. 510-17-	325.4 174.0 371.7	2.51246 2.24049 2.57020
Ref. Mon. 510-15---	45 12 07.20 71 23 58.46	32 36 33 53 58 04	212 36 25 233 57 52	Ref. Mon. 510-16- Across-----	474.4 462.3	2.67611 2.66490
Coat-----	45 12 08.93 71 24 03.71	17 16 51 38 31 31 295 04 03	197 16 47 218 31 23 115 04 07	Ref. Mon. 510-16- Across----- Ref. Mon. 510-15-	474.6 416.1 126.6	2.67637 2.61924 2.10229
Shot-----	45 12 13.09 71 23 57.38	7 22 28 47 08 18	187 22 27 227 08 13	Ref. Mon. 510-15- Coat-----	183.4 188.5	2.26332 2.27532
Ref. Mon. 510-14---	45 12 12.56 71 23 51.46	42 41 03 67 16 43 97 10 52	222 40 58 247 16 34 277 10 48	Ref. Mon. 510-15- Coat----- Shot-----	225.2 289.8 130.2	2.35264 2.46215 2.11456
Ref. Mon. 510-13---	45 12 19.18 71 23 52.36	30 14 13 354 31 52	210 14 10 174 31 53	Shot----- Ref. Mon. 510-14-	217.7 205.2	2.33776 2.31227
Lost-----	45 12 21.55 71 24 00.64	292 04 36 324 10 44 344 45 12	112 04 42 144 10 51 164 45 15	Ref. Mon. 510-13- Ref. Mon. 510-14- Shot-----	195.2 342.4 270.9	2.29037 2.53457 2.43285



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME TRIANGULATION, HALLS STREAM— continued	° / "	° / "	° / "			
Ref. Mon. 510-12---	45 12 28.22 71 23 56.33	24 37 18 342 45 24	204 37 15 162 45 27	Lost----- Ref. Mon. 510-13--	226.2 292.1	2.35452 2.46557
Duke-----	45 12 27.04 71 24 06.57	260 48 09 308 03 47 322 40 17	80 48 16 128 03 57 142 40 21	Ref. Mon. 510-12-- Ref. Mon. 510-13-- Lost-----	226.4 393.8 213.1	2.35484 2.59531 2.32862
Ref. Mon. 510-11---	45 12 41.39 71 24 02.87	10 19 02 340 38 48	190 19 00 160 38 53	Duke----- Ref. Mon. 510-12--	450.2 431.1	2.65337 2.63454
Slim-----	45 12 36.23 71 24 11.59	230 04 54 306 36 40 338 51 58	50 05 00 126 36 51 158 52 02	Ref. Mon. 510-11-- Ref. Mon. 510-12-- Duke-----	248.1 415.0 304.2	2.39460 2.61806 2.48309
Tall-----	45 12 43.95 71 24 16.88	284 29 23 334 09 13	104 29 33 154 09 17	Ref. Mon. 510-11-- Slim-----	315.7 264.7	2.49926 2.42269
Ref. Mon. 510-10---	45 12 46.35 71 24 07.86	14 35 25 69 19 27 324 35 11	194 35 23 249 19 21 144 35 15	Slim----- Tall----- Ref. Mon. 510-11--	322.8 210.2 188.0	2.50898 2.32271 2.27419
Log-----	45 12 52.71 71 24 20.78	304 50 13 342 31 32	124 50 22 162 31 35	Ref. Mon. 510-10-- Tall-----	343.3 283.5	2.53573 2.45248
Ref. Mon. 510-9---	45 12 55.93 71 24 12.28	15 11 22 61 49 03 341 57 02	195 11 19 241 48 57 161 57 05	Tall----- Log----- Ref. Mon. 510-10--	383.2 210.5 310.8	2.58337 2.32315 2.49252
Heavy-----	45 13 02.46 71 24 17.10	14 57 24 332 27 23	194 57 21 152 27 26	Log----- Ref. Mon. 510-9---	311.5 227.3	2.49343 2.35660
Ground-----	45 13 03.23 71 24 36.14	273 17 16 314 05 29	93 17 30 134 05 40	Heavy----- Log-----	416.3 466.8	2.61944 2.66914
Ref. Mon. 510-8---	45 12 58.88 71 24 26.76	123 13 02 242 23 07 286 06 54 325 37 55	303 12 55 62 23 14 106 07 04 145 37 59	Ground----- Heavy----- Ref. Mon. 510-9--- Log-----	244.9 237.9 328.8 231.0	2.38896 2.37635 2.51695 2.36360
Ref. Mon. 510-7---	45 12 59.81 71 24 36.65	186 00 47 259 10 11 277 32 59	6 00 47 79 10 25 97 33 06	Ground----- Heavy----- Ref. Mon. 510-8---	106.1 434.5 217.9	2.02573 2.63799 2.33822
Ref. Mon. 510-6---	45 13 01.80 71 24 43.57	254 45 28 292 06 52	74 45 33 112 06 57	Ground----- Ref. Mon. 510-7---	168.0 163.0	2.22532 2.21211
Owl-----	45 13 06.98 71 24 42.34	9 35 12 310 35 20 330 44 15	189 35 11 130 35 24 150 44 19	Ref. Mon. 510-6--- Ground----- Ref. Mon. 510-7---	162.2 177.9 253.6	2.20997 2.25014 2.40418
Home-----	45 13 05.61 71 24 51.65	258 16 56 303 44 51	78 17 03 123 44 57	Owl----- Ref. Mon. 510-6---	207.6 212.0	2.31716 2.32625
Ref. Mon. 510-5---	45 13 01.84 71 24 54.88	211 10 49 239 54 36 270 18 12	31 10 51 59 54 45 90 18 20	Home----- Owl----- Ref. Mon. 510-6---	136.1 316.3 246.7	2.13387 2.50016 2.39219
Ref. Mon. 510-4---	45 13 05.31 71 25 00.30	267 06 44 312 06 09	87 06 50 132 06 13	Home----- Ref. Mon. 510-5---	189.0 159.5	2.27652 2.20269
High-----	45 13 08.59 71 24 56.33	40 29 45 311 59 09 351 21 14	220 29 42 131 59 12 171 21 15	Ref. Mon. 510-4--- Home----- Ref. Mon. 510-5---	133.4 137.4 210.8	2.12518 2.13807 2.32381
shade (south base)--	45 13 10.62 71 25 02.87	293 44 04 341 11 53	113 44 09 161 11 55	High----- Ref. Mon. 510-4---	155.7 173.4	2.19221 2.23895

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME TRIANGULATION, HALLS STREAM—continued	° ' "	° ' "	° ' "			
Ridge (Halls Stream)	45 13 12.96 71 24 59.34	5 06 21 46 52 22 334 04 09	185 06 20 226 52 19 154 04 11	Ref. Mon. 510-4 Shade High	237.2 105.5 149.9	2.37503 2.02314 2.17566
Ref. Mon. 510-3 (north base).	45 13 16.79 71 25 07.46	303 42 08 332 12 39	123 42 14 152 12 42	Ridge Shade	213.1 215.17	2.32860 2.33278
Dry	45 13 19.62 71 25 03.14	47 10 53 338 02 39 358 46 27	227 10 50 158 02 42 178 46 27	Ref. Mon. 510-3 Ridge Shade	128.7 221.8 277.9	2.10942 2.34592 2.44383
Block	45 13 25.41 71 25 13.76	307 37 21 332 41 11	127 37 28 152 41 15	Dry Ref. Mon. 510-3	292.6 299.5	2.46633 2.47637
Ref. Mon. 510-2	45 13 22.81 71 25 18.33	231 14 05 286 33 21 308 06 23	51 14 08 106 33 31 128 06 30	Block Dry Ref. Mon. 510-3	127.9 345.9 301.4	2.10691 2.53890 2.47914
Gum	45 13 30.65 71 25 22.93	308 59 08 337 29 10	128 59 14 157 29 13	Block Ref. Mon. 510-2	257.4 262.0	2.41053 2.41824
Ref. Mon. 510-1	45 13 28.10 71 25 27.61	232 21 40 285 22 48 308 52 28	52 21 43 105 22 57 128 52 34	Gum Block Ref. Mon. 510-2	129.0 313.4 260.1	2.11059 2.49613 2.41507
Sun	45 13 31.05 71 25 33.21	273 09 31 306 44 48	93 09 38 126 44 52	Gum Ref. Mon. 510-1	224.6 152.4	2.35137 2.18288
Shine	45 13 26.61 71 25 39.01	222 42 00 250 24 37 259 30 08 284 33 07	42 42 04 70 24 48 79 30 16 104 33 21	Sun Gum Ref. Mon. 510-1 Ref. Mon. 510-2	186.7 372.4 253.0 466.2	2.27125 2.57105 2.40306 2.66853
Labor	45 13 32.06 71 25 45.44	276 38 47 320 11 37	96 38 56 140 11 42	Sun Shine	268.7 219.1	2.42934 2.34073
Day	45 13 37.36 71 25 38.71	1 08 32 41 56 20 328 20 13	181 08 32 221 56 15 148 20 17	Shine Labor Sun	331.9 219.8 228.7	2.52104 2.34205 2.35918
Berry	45 13 37.54 71 25 53.22	271 01 30 314 55 06	91 01 40 134 55 11	Day Labor	316.6 239.6	2.50053 2.37948
Bunch	45 13 44.32 71 25 53.69	303 20 19 334 34 34 357 11 36	123 20 30 154 34 40 177 11 37	Day Labor Berry	391.2 419.1 209.6	2.59240 2.62232 2.32137
Stop	45 13 45.92 71 26 03.75	282 40 38 318 23 42	102 40 45 138 23 50	Bunch Berry	224.9 346.0	2.35207 2.53905
Run	45 13 50.63 71 26 04.55	309 23 47 328 31 55 353 07 38	129 23 55 148 32 04 173 07 39	Bunch Berry Stop	306.6 473.6 146.3	2.48663 2.67542 2.16527
Leaf	45 13 54.05 71 26 20.64	286 45 40 304 15 22	106 45 51 124 15 34	Run Stop	366.6 445.9	2.56416 2.64919
Bog	45 13 59.16 71 26 15.23	36 51 35 318 31 23 328 30 28	216 51 31 138 31 30 148 30 36	Leaf Run Stop	197.0 351.5 479.2	2.29451 2.54593 2.68051
Snag	45 13 58.22 71 26 27.62	263 54 12 310 13 58	83 54 21 130 14 03	Bog Leaf	271.9 199.4	2.43443 2.29963
Solid	45 14 03.56 71 26 23.11	30 50 36 308 18 03 349 36 24	210 50 33 128 18 09 169 36 26	Snag Bog Leaf	191.9 219.2 298.4	2.28298 2.34081 2.47477

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MINOR SCHEME TRIANGULATION, HALLS STREAM—continued						
Hub-----	45 14 05.94 71 26 30.43	137 10 08 294 41 50 345 34 16	317 10 03 114 41 55 165 34 18	Mon. 505----- Solid----- Snag-----	238.5 175.7 245.9	2.37745 2.24478 2.39075
Nail-----	45 14 03.36 71 26 33.77	160 41 03 222 33 31 268 30 26 319 45 54	340 41 00 42 33 33 88 30 33 139 45 58	Mon. 505----- Hub----- Solid----- Snag-----	269.5 107.9 232.7 207.8	2.43062 2.03300 2.36677 2.31773
Still-----	45 14 05.53 71 26 39.39	190 06 15 266 20 45 298 39 43	10 06 16 86 20 51 118 39 47	Mon. 505----- Hub----- Nail-----	190.3 195.9 139.7	2.27950 2.29208 2.14508
Big-----	45 14 12.08 71 26 38.47	5 42 20 317 14 20 339 10 21	185 42 19 137 14 25 159 10 24	Still----- Hub----- Nail-----	203.1 258.2 287.9	2.30769 2.41203 2.45922
POINTS SUPPLEMENTARY TO MINOR SCHEME, HALLS STREAM						
Ref. Mon. 517-----	45 00 48.74 71 30 00.88	72 09 56 149 44 06 214 42 59	252 09 53 329 43 57 34 43 06	Lot----- Ref. Mon. 512-6--- Chaloux-----	88.2 527.2 392.3	1.94552 2.72198 2.59364
Mon. 518-----	45 00 48.65 71 30 09.66	170 53 03 231 56 49 269 08 55	350 53 00 51 57 02 89 09 01	Ref. Mon. 512-6--- Chaloux----- Ref. Mon. 517-----	464.1 527.8 192.2	2.66657 2.72248 2.28381
Mon. 519-----	45 00 48.53 71 30 21.28	201 23 20 243 50 28 269 08 56 269 09 03	21 23 25 63 50 49 89 09 10 89 09 11	Ref. Mon. 512-6--- Chaloux----- Ref. Mon. 517----- Mon. 518-----	496.1 746.6 446.7 254.5	2.69560 2.87306 2.65005 2.40570
Mon. 520-----	45 00 48.13 71 30 59.14	257 09 46 269 08 31 270 22 51	77 10 34 89 09 12 90 23 29	Chaloux----- Ref. Mon. 517----- Lot-----	1,537.6 1,276.0 1,191.9	3.18685 3.10584 3.07624
Ref. Mon. 512-5-----	45 01 20.57 71 30 01.70	49 47 30	229 47 28	Rock-----	83.02	1.91917
Rowell's house chimney.	45 01 29.66 71 30 03.94	187 20 07 253 11 36 287 03 15	7 20 10 73 12 01 107 03 37	Van----- Beecher Falls north base. Beecher Falls south base.	556.9 800.2 709.1	2.74574 2.90319 2.85072
Van Dyke's tenant house chimney.	45 01 52.53 71 29 41.97	69 24 40 329 01 43 347 50 35	249 24 27 149 01 52 167 50 41	Van----- Beecher Falls north base. Beecher Falls south base.	437.8 553.9 935.2	2.64127 2.74344 2.97092
Van Dyke's house chimney.	45 02 13.83 71 29 56.52	6 25 12 331 56 22	186 25 09 151 56 41	Van----- Beecher Falls north base.	816.5 1,283.2	2.91195 3.10828
Ref. Mon. 512-3-----	45 02 44.46 71 29 36.07	254 27 27	74 27 28	Bryant-----	20.83	1.31879
Old schoolhouse flagpole.	45 02 54.47 71 29 36.62	17 40 30 57 33 57 349 20 53	197 40 14 237 33 22 169 21 03	Ref. Mon. 512-4--- Advent----- Pasture-----	1,617.7 1,278.9 1,681.1	3.20891 3.10682 3.22560
Ref. Mon. 512-2-----	45 02 54.63 71 30 13.38	21 41 52 137 54 08 249 23 48	201 41 43 317 53 48 69 23 57	Advent----- Shift----- Cherry-----	743.4 896.4 320.0	2.87123 2.95248 2.50514



## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MINOR SCHEME, HALLS STREAM—contd.	° ' "	° ' "	° ' "			
Azimuth mark-----	45 02 54.17 71 29 43.98	53 36 56 110 12 03 358 38 13	233 36 26 290 11 52 178 38 13	Advent----- Cherry----- Meadow-----	1, 140. 8 366. 5 699. 3	3. 05721 2. 56408 2. 84467
Ref. Mon. 512-1----	45 03 19. 85 71 29 51. 83	168 20 02 264 08 41	348 19 52 84 09 24	Fall----- Hill-----	1, 530. 7 1, 323. 4	3. 18489 3. 12168
New schoolhouse flagpole.	45 03 46. 67 71 29 24. 22	36 07 16 60 41 22 167 56 14 314 12 19	216 06 57 240 40 27 347 55 58 134 12 42	Ref. Mon. 512-1-- Shift----- Wheeler----- Hill-----	1, 024. 8 1, 922. 7 2, 399. 2 993. 8	3. 01063 3. 28392 3. 38007 2. 99729
Ref. Mon. 512-----	45 04 00. 71 71 29 52. 76	129 26 26 230 03 14 302 39 11	309 26 16 50 04 04 122 39 19	Fall----- Cone----- Pond-----	374. 4 1, 997. 0 281. 2	2. 57335 3. 30037 2. 44905
Ref. Mon. 511-16---	45 04 16. 00 71 29 37. 67	69 16 41 171 48 32 327 48 04	249 16 21 351 48 26 147 48 37	Fall----- Wheeler----- Hill-----	662. 1 1, 455. 4 1, 888. 9	2. 82098 3. 16299 3. 27622
Ref. Mon. 511-15---	45 04 39. 73 71 29 16. 19	48 24 34 263 57 25 347 02 07	228 23 59 83 57 49 167 02 24	Fall----- Cone----- Hill-----	1, 456. 3 735. 1 2, 391. 9	3. 16325 2. 86637 3. 37875
East Hereford, Catholic church cross.	45 04 41. 98 71 30 09. 99	218 01 51 269 45 25 336 42 56	38 02 07 89 46 27 156 43 17	Wheeler----- Cone----- Pond-----	810. 7 1, 907. 7 1, 552. 3	2. 90888 3. 28052 3. 19098
Red barn cupola----	45 04 46. 61 71 29 57. 10	9 21 00 330 37 14 348 03 32	189 20 53 150 38 00 168 03 42	Fall----- Hill----- Pond-----	1, 195. 1 2, 918. 6 1, 603. 5	3. 07739 3. 46517 3. 20506
Ref. Mon. 511-14---	45 05 00. 08 71 28 34. 58	18 00 09 51 25 38 92 53 49	198 00 03 231 24 33 272 52 58	Cone----- Fall----- Wheeler-----	579. 0 2, 557. 2 1, 589. 0	2. 76269 3. 40777 3. 20112
Ref. Mon. 511-13---	45 05 14. 56 71 28 05. 98	38 52 52 80 35 32 262 20 10	218 52 26 260 34 20 82 20 28	Cone----- Wheeler----- Caron-----	1, 281. 6 2, 242. 7 579. 9	3. 10776 3. 35076 2. 76335
Ref. Mon. 511-12---	45 05 34. 45 71 27 46. 25	37 29 32 182 50 54 345 04 34	217 28 52 2 50 55 165 04 39	Cone----- Cedar----- Caron-----	2, 031. 1 617. 0 555. 4	3. 30774 2. 79027 2. 74457
Ref. Mon. 511-11---	45 06 00. 80 71 27 26. 27	64 03 58 64 20 18 256 40 07 335 33 08	244 03 44 244 20 04 76 40 17 155 33 10	Cedar----- Cedar reference mark. Barn----- Old-----	451. 5 450. 4 337. 3 125. 6	2. 65466 2. 65361 2. 52796 2. 09902
Ref. Mon. 511-10---	45 06 14. 76 71 27 01. 42	31 22 28 56 30 42 56 36 42 95 13 12	211 22 21 236 30 12 236 36 12 275 12 54	Barn----- Cedar----- Cedar reference mark. Poplar-----	413. 5 1, 138. 5 1, 137. 1 547. 5	2. 61645 3. 05633 3. 05581 2. 73841
Ref. Mon. 511-9----	45 06 46. 66 71 26 37. 90	100 45 00	280 44 46	Paquette-----	436. 76	2. 64024
Ref. Mon. 511-8----	45 07 19. 36 71 25 48. 20	111 32 59 143 40 04 230 46 58	291 32 39 323 39 47 50 47 10	Thicket----- Stub----- Cliff-----	673. 6 866. 5 497. 1	2. 82838 2. 93777 2. 69648
Ref. Mon. 511-7----	45 07 49. 40 71 25 41. 06	138 05 54 315 24 50 339 30 12	318 05 51 135 24 54 159 30 18	White----- Jim----- Cliff-----	147. 7 183. 0 654. 5	2. 16950 2. 26248 2. 81588

## LAKE POHENAGAMOOK TO THE VERMONT-QUEBEC BOUNDARY—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MINOR SCHEME, HALLS STREAM—contd.						
	° ' "	° ' "	° ' "			
Ref. Mon. 511-6----	45 08 11.95	45 52 25	225 52 23	Bridge	70.1	1.84590
	71 25 53.73	169 06 33	349 06 32	Woods	160.2	2.20471
		291 34 20	111 34 22	Hall	87.8	1.94338
Car-----	45 08 29.24	134 11 31	314 11 23	Duran	348.6	2.54228
	71 26 05.32	336 27 36	156 27 39	Pole	239.5	2.37927
		359 35 58	179 35 58	Camp	322.7	2.50877
Ref. Mon. 511-5----	45 08 43.75	1 15 11	181 15 11	Cut	272.6	2.43549
	71 26 04.34	52 55 53	232 55 45	Duran	340.1	2.53164
		127 02 44	307 02 41	Leau	147.8	2.16970
		273 28 08	93 28 12	Bird	120.0	2.07916
Ref. Mon. 511-----	45 09 58.03	65 26 14	245 26 10	King	120.4	2.08076
	71 25 30.23	187 40 14	7 40 15	Clay	307.1	2.48734
		288 10 21	108 10 24	Swamp	113.1	2.05360
Ref. Mon. 510-----	45 13 37.70	17 47 09	197 47 07	Labor	183.0	2.26234
	71 25 42.88	88 43 28	268 43 21	Berry	225.6	2.35333
		276 42 09	96 42 12	Day	91.6	1.96213
Ref. Mon. 509-----	45 13 48.60	24 45 35	204 45 34	Stop	90.9	1.95871
	71 26 02.00	138 25 58	318 25 56	Run	83.8	1.92315
		306 02 01	126 02 07	Bunch	224.3	2.35080
Ref. Mon. 508-----	45 13 58.76	3 06 27	183 06 27	Leaf	145.7	2.16339
	71 26 20.28	84 02 45	264 02 40	Snag	161.0	2.20670
		263 41 57	83 42 01	Bog	111.0	2.04514
Mon. 507-----	45 14 05.58	84 49 29	264 49 29	Still	15.7	1.19628
	71 26 38.68	266 28 42	86 28 48	Hub	180.2	2.25579
		302 36 55	122 36 59	Nail	126.9	2.10351
Mon. 506-----	45 14 08.21	11 26 08	191 26 08	Still	84.3	1.92587
	71 26 38.63	181 39 58	1 39 59	Big	119.5	2.07738
		291 25 13	111 25 19	Hub	192.1	2.28347

GEOGRAPHIC POSITIONS OF TRIANGULATION STATIONS ALONG THE VERMONT-QUEBEC  
AND NEW YORK-QUEBEC BOUNDARIES TO THE ST. LAWRENCE RIVER

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Loga- rithm
MAJOR SCHEME						
	° ' "	° ' "	° ' "			
Stewart	44 59 38.293 71 31 12.846	146 59 41.3 233 31 12.9	326 56 14.2 53 32 41.6	Hereford Beecher tablet	11,753.4 3,415.3	4.070165 3.533427
Fino	45 02 33.832 71 31 48.942	128 19 38.6 313 46 13.6 351 41 53.1	308 16 37.0 133 48 07.9 171 42 18.7	Hereford Beecher tablet Stewart	7,154.8 4,897.5 5,476.2	3.854597 3.689975 3.738479
Searchme	45 00 08.294 71 35 17.505	173 17 01.2 225 26 40.2 262 12 27.7 279 46 51.7	353 16 27.2 45 29 07.7 82 16 49.4 99 49 44.7	Hereford Fino Beecher tablet Stewart	8,989.1 6,405.9 8,179.2 5,438.3	3.953717 3.806579 3.912709 3.735461
Brown	45 04 33.231 71 41 28.440	263 54 56.4 315 10 23.9	83 58 45.0 135 14 46.3	Hereford Searchme	7,101.4 11,524.1	3.851346 4.061608
Averill	44 58 04.540 71 44 24.313	197 46 29.6 220 31 56.8 252 15 32.3	17 48 34.0 40 37 49.6 72 21 58.8	Brown Hereford Searchme	12,601.5 16,784.6 12,574.0	4.100423 4.224911 4.099472
Pinnacle	45 01 25.406 71 53 47.262	250 11 55.3 296 38 25.6	70 20 38.1 116 45 03.6	Brown Averill	17,176.3 13,802.2	4.234929 4.139947
Duck	44 57 04.019 71 57 18.810	209 51 01.8 236 13 45.8 263 38 36.5	29 53 31.3 56 24 57.9 83 47 43.7	Pinnacle Brown Averill	9,305.1 25,007.5 17,077.9	3.968723 4.398071 4.232434
Fairfax	45 05 00.530 72 00 36.398	271 48 34.0 306 31 35.9 343 35 28.2	92 02 06.8 126 36 25.5 163 37 48.0	Brown Pinnacle Duck	25,122.5 11,146.9 15,332.8	4.400062 4.047154 4.185622
Dufferin	45 03 57.155 72 03 47.721	244 55 34.6 326 13 34.5	64 57 50.0 146 18 09.5	Fairfax Duck	4,619.7 15,335.8	3.664618 4.185706
Oats	45 03 57.720 72 08 46.629	270 07 24.1 310 13 30.5	90 10 55.7 130 21 36.9	Dufferin Duck	6,539.3 19,747.9	3.815534 4.295521
Derrick	45 03 58.973 72 09 00.375	260 10 12.3 270 26 21.6 277 19 44.6 309 45 02.7	80 16 09.1 90 30 03.0 97 19 54.4 129 53 18.9	Fairfax Dufferin Oats Duck	11,186.6 6,840.3 303.2 20,003.2	4.048697 3.835072 2.481741 4.301099
East Lake	44 58 44.101 72 09 02.851	180 19 09.7 182 05 58.1 215 29 36.9 281 15 12.5	0 19 11.4 2 06 09.6 35 33 19.8 101 23 30.0	Derrick Oats Dufferin Duck	9,720.2 9,687.9 11,874.1 15,735.9	3.987675 3.986228 4.074600 4.196892
Newport	44 56 55.590 72 16 25.219	217 34 35.1 250 53 47.4	37 39 59.4 70 59 00.0	Oats East Lake	16,452.0 10,257.4	4.216219 4.011038
Owl's Head (Geo- detic Survey of Canada).	45 03 45.412 72 17 54.811	267 25 55.5 267 53 49.0 268 07 53.7 308 33 31.7 351 10 30.8	87 55 32.1 88 00 07.3 88 14 21.8 128 39 48.0 171 11 34.2	Hereford Derrick Oats East Lake Newport	54,934.2 11,699.8 11,999.2 14,905.4 12,802.3	4.739842 4.068180 4.079151 4.173343 4.107289
Jay	44 55 27.292 72 31 34.145	229 19 51.3 262 07 23.2	49 29 30.6 82 18 05.3	Owl's Head Newport	23,633.9 20,115.3	4.373535 4.303527
Round Top	45 04 51.404 72 32 49.112	275 51 25.6 304 11 18.3 354 36 23.0	96 01 58.8 124 22 54.3 174 37 16.0	Owl's Head Newport Jay	19,668.8 26,074.8 17,491.2	4.293777 4.416221 4.242819
Doctor	44 53 02.795 72 42 07.647	209 10 07.8 252 08 40.8	29 16 42.6 72 16 08.0	Round Top Jay	25,064.7 14,596.6	4.399062 4.164253



## VERMONT-QUEBEC AND NEW YORK-QUEBEC BOUNDARIES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
MAJOR SCHEME—con.						
St. Armand (Geodetic Survey of Canada).	45 02 47.117	255 44 42.8	75 52 53.9	Round Top...	15,655.0	4.194654
	72 44 22.842	266 52 45.63	87 11 29.60	Owl's Head...	34,795.44	4.5415223
		308 48 02.7	128 57 06.1	Jay.....	21,632.2	4.335100
		350 39 30.8	170 41 06.4	Doctor.....	18,279.4	4.261963
Franklin.....	44 57 52.153	236 40 33.8	56 48 02.1	St. Armand...	16,601.8	4.220154
	72 54 56.708	297 49 46.1	117 58 49.3	Doctor.....	19,085.7	4.280709
McDermott.....	45 03 08.701	15 34 12.9	195 32 45.0	Franklin.....	10,143.4	4.006184
	72 52 52.476	273 22 07.6	93 28 08.3	St. Armand...	11,172.6	4.048153
Sheldon .....	44 53 44.191	215 01 52.3	35 04 44.4	Franklin.....	9,350.6	3.970840
	72 59 01.616	228 52 48.7	49 03 09.0	St. Armand...	25,529.0	4.407033
		273 11 15.3	93 23 10.2	Doctor.....	22,287.6	4.348064
Saint.....	45 00 03.650	246 10 42.7	66 17 42.0	McDermott...	14,176.3	4.151564
	73 02 45.123	258 04 52.5	78 17 52.3	St. Armand...	24,654.7	4.391900
		291 32 05.4	111 37 36.5	Franklin.....	11,036.2	4.042820
		337 16 43.4	157 19 21.3	Sheldon .....	12,697.2	4.103707
Blair.....	44 58 48.129	261 17 10.6	81 25 25.5	Saint.....	15,509.9	4.190608
	73 14 25.093	294 46 14.4	114 57 06.7	Sheldon.....	22,316.4	4.348625
Alburg.....	44 54 29.595	206 57 48.9	26 59 59.8	Blair.....	8,955.6	3.952094
	73 17 30.426	241 55 37.9	62 06 03.4	Saint.....	21,975.4	4.341937
		273 11 19.2	93 24 21.9	Sheldon.....	24,367.5	4.386811
Mon. 650-A .....	45 00 35.490	283 57 10.8	104 04 19.5	Blair.....	13,687.4	4.136321
	73 24 31.367	320 42 54.9	140 47 52.4	Alburg.....	14,584.2	4.163884
Champlain.....	44 57 37.821	214 42 43.5	34 44 46.1	Mon. 650-A .....	6,673.4	3.824349
	73 27 24.900	262 41 06.8	82 50 17.9	Blair.....	17,225.9	4.236181
		293 57 58.2	114 04 58.1	Alburg.....	14,271.7	4.154476
Covey Hill (Geodetic Survey of Canada).	45 01 05.025	267 27 30.45	88 12 21.32	St. Armand...	83,313.63	4.9207161
	73 47 46.114					
Huntingdon (Geodetic Survey of Canada).	45 05 33.933	282 47 23.99	103 06 51.51	Covey Hill....	37,035.93	4.5686233
	74 15 15.627					
Bonville (Geodetic Survey of Canada).	45 07 33.156	274 23 52.43	94 48 33.68	Huntingdon...	45,854.95	4.6613861
	74 50 06.446					
St. Raphael church spire (Geodetic Survey of Canada).	45 12 42.283	63 01 13.07	242 51 06.53	Bonville.....	20,974.15	4.3216844
	74 35 51.177					
POINTS SUPPLEMENTARY TO MAJOR SCHEME						
Mon. 519.....	45 00 48.528	27 31 10.8	207 30 34.3	Stewart.....	2,444.6	3.388215
	71 30 21.279	274 52 41.6	94 53 33.8	Beechertablet.	1,622.8	3.210266
Mon. 523-A.....	45 00 45.558	231 27 41.4	51 29 57.0	Fino.....	5,366.9	3.729724
	71 35 00.749	270 18 35.1	90 22 45.0	Beechertablet.	7,736.8	3.888564
		292 33 54.5	112 36 35.7	Stewart.....	5,406.1	3.732882
Sup.....	45 01 47.635	51 55 46.0	231 49 46.0	Duck.....	14,182.5	4.151754
	71 48 49.473	84 01 13.0	263 57 42.4	Pinnacle.....	6,555.3	3.816594
		242 02 49.7	62 08 01.9	Brown.....	10,921.1	4.038266
		319 49 57.5	139 53 05.0	Averill.....	9,008.9	3.954670
Craig's Knoll.....	45 00 24.924	152 11 57.1	332 11 13.6	Sup.....	2,886.6	3.460390
	71 47 47.972	314 08 45.4	134 11 09.4	Averill.....	6,219.8	3.793778

## VERMONT-QUEBEC AND NEW YORK-QUEBEC BOUNDARIES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME—contd.	° ' "	° ' "	° ' "			
Mon. 534-A-----	45 00 38.930 71 47 27.455	46 06 16.0 139 45 15.4	226 06 01.5 319 44 17.4	Craig's Knoll----- Sup-----	623.5 2,779.1	2.794859 3.443898
Pond-----	45 00 45.386 71 55 21.445	20 37 57.2 239 03 56.7 288 57 57.0	200 36 34.3 59 05 03.3 109 05 41.6	Duck----- Pinnacle----- Averill-----	7,301.3 2,403.9 15,227.5	3.863400 3.380921 4.182630
Mon. 538-B-----	45 00 29.875 71 53 18.291	100 04 48.0 159 41 42.5	280 03 20.9 339 41 22.0	Pond----- Pinnacle-----	2,739.1 1,827.9	3.437605 3.261944
Mon. 539-----	45 00 28.282 71 54 19.416	111 14 51.1 201 45 41.5 267 53 26.2	291 14 07.2 21 46 04.2 87 54 09.4	Pond----- Pinnacle----- Mon. 538-B-----	1,457.4 1,898.8 1,339.5	3.163566 3.278472 3.126949
Mon. 550 ecc-----	45 00 21.474 72 03 46.500	134 22 20.0 179 46 12.3	314 18 37.9 359 46 11.4	Derrick----- Dufferin-----	9,606.3 6,658.1	3.982557 3.823350
Mon. 550-----	45 00 22.329 72 03 46.054	20 17 49	200 17 49	Mon. 550 ecc-----	28.13	1.449218
Mon. 545 ecc-----	45 00 26.233 72 00 27.324	88 05 26.2 146 03 08.7	268 03 05.3 326 00 47.0	Mon. 550 ecc----- Dufferin-----	4,364.4 7,850.8	3.639926 3.894915
Mon. 545-----	45 00 26.050 72 00 27.332	181 41	1 41	Mon. 545 ecc-----	5.64	0.751188
Mon. 551-A-----	45 00 21.781 72 04 35.465	139 10 16.2 188 55 41.6	319 07 08.7 8 56 15.4	Derrick----- Dufferin-----	8,864.3 6,730.2	3.947645 3.828028
Stanstead benchmark	45 01 09.259 72 05 50.652	43 13 52.5 60 40 18.6 106 59 15.5	223 11 36.6 240 32 50.0 286 50 43.1	East Lake----- Newport----- Owl's Head-----	6,148.2 15,956.1 16,566.4	3.788750 4.202927 4.219229
Mon. 566-----	45 00 20.047 72 11 49.977	43 43 28.8 308 57 27.4	223 40 14.3 128 59 25.5	Newport----- East Lake-----	8,729.7 4,709.1	3.940997 3.672934
Mon. 567-----	45 00 19.609 72 12 20.034	268 49 11.1 304 17 50.1	88 49 32.4 124 20 09.5	Mon. 566----- East Lake-----	658.4 5,229.7	2.818486 3.718476
Mon. 574-----	45 00 15.367 72 16 14.681	2 08 43.0 286 32 34.3	182 08 35.6 106 37 39.6	Newport----- East Lake-----	6,157.3 9,870.2	3.790379 3.994325
Broo-----	45 03 12.192 72 26 50.752	23 25 14.8 111 22 25.7 264 56 57.8 310 15 17.1	203 21 54.4 291 18 12.0 85 03 17.2 130 22 39.5	Jay----- Round Top----- Owl's Head----- Newport-----	15,636.5 8,416.8 11,771.4 17,968.3	4.194140 3.925148 4.070828 4.254506
Sicard-----	44 58 30.927 72 22 17.524	65 08 11.8 145 27 25.7 290 49 46.0	245 01 38.6 325 24 12.5 110 53 55.1	Jay----- Broo----- Newport-----	13,454.5 10,544.3 8,263.3	4.128869 4.023018 3.917154
Bickford-----	44 57 17.713 72 21 34.554	75 31 23.6 157 23 03.3 275 43 13.8	255 24 20.0 337 22 32.9 95 46 52.5	Jay----- Sicard----- Newport-----	13,581.1 2,448.4 6,815.2	4.132934 3.388888 3.833479
Mon. 581-A-----	45 00 19.625 72 20 38.588	32 52 07.0 57 55 52.0 123 12 55.9	212 50 57.1 237 48 08.7 303 08 32.6	Sicard----- Jay----- Broo-----	3,994.6 16,966.2 9,734.2	3.601468 4.229584 3.988302
Mon. 581-----	45 00 18.482 72 20 04.337	41 19 15.3 59 19 57.5 92 41 43.7	221 17 41.2 239 11 50.0 272 41 19.5	Sicard----- Jay----- Mon. 581-A-----	4,420.0 17,588.3 751.0	3.645421 4.245225 2.875616
Mon. 584-----	45 00 23.198 72 22 46.448	134 18 42.8 225 36 46.5 272 14 35.9	314 15 49.9 45 40 13.0 92 16 06.3	Broo----- Owl's Head----- Mon. 581-A-----	7,471.1 8,928.6 2,802.4	3.873385 3.950781 3.447523

## VERMONT-QUEBEC AND NEW YORK-QUEBEC BOUNDARIES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME—contd.	° ' "	° ' "	° ' "			
Mon. 588-B-----	45 00 29.104 72 26 09.930	169 56 19.6 240 44 21.8 297 10 01.1	349 55 50.6 60 50 12.1 117 16 54.4	Broo----- Owl's Head----- Newport-----	5, 113. 2 12, 416. 9 14, 407. 5	3. 708689 4. 094013 4. 158589
Mon. 590-----	45 00 31.066 72 27 03.473	183 12 11.5 243 24 06.2 272 57 03.9	3 12 20.4 63 30 34.4 92 57 41.8	Broo----- Owl's Head----- Mon. 588-B----	4, 981. 7 13, 424. 8 1, 174. 1	3. 697376 4. 127908 3. 069710
Lot 5, R 7 (Potton Tp., cadastral No. 768).	45 01 17.383 72 21 09.190	51 46 57.2 113 24 07.5 222 56 02.2	231 39 35.5 293 15 52.1 42 58 19.8	Jay----- Round Top----- Owl's Head-----	17, 445. 2 16, 680. 6 6, 243. 4	4. 241676 4. 222212 3. 795424
Mon. 602-----	45 00 55.095 72 40 30.707	8 18 08.4 124 15 30.3 310 39 45.2	188 17 00.0 304 12 46.1 130 46 04.4	Doctor----- St. Armand----- Jay-----	14, 733. 7 6, 146. 6 15, 513. 0	4. 168312 3. 788636 4. 190697
Mon. 606 ecc-----	45 00 56.973 72 44 03.771	173 00 07.5 270 41 26.4 301 42 20.3	352 59 54.0 90 43 57.1 121 51 10.2	St. Armand----- Mon. 602----- Jay-----	3, 425. 7 4, 665. 7 19, 324. 3	3. 534743 3. 668918 4. 286104
Mon. 606-----	45 00 57.224 72 44 03.899	340 06	160 06	Mon. 606 ecc---	8. 23	0. 915380
Mon. 621-B ecc-----	45 00 53.520 72 59 47.415	245 17 00.7 260 04 46.9	65 21 54.2 80 15 41.0	McDermott----- St. Armand-----	9, 995. 7 20, 541. 3	3. 999812 4. 312627
Mon. 621-B-----	45 00 53.454 72 59 47.417	181 27	1 27	Mon. 621-B ecc---	2. 04	0. 310091
Abercornbenchmark.	45 01 15.814 72 39 44.184	57 52 55.3 114 49 39.2	237 52 22.4 294 46 22.1	Mon. 602----- St. Armand-----	1, 202. 8 6, 719. 4	3. 080196 3. 827333
Mon. 625-----	45 00 55.121 73 01 17.348	50 25 52.2 261 03 06.6 271 25 46.2 304 04 29.4	230 24 50.2 81 15 04.4 91 26 49.9 124 08 58.5	Saint----- St. Armand----- Mon. 621-B ecc. Franklin-----	2, 493. 9 22, 475. 8 1, 969. 9 10, 071. 4	3. 396877 4. 351716 3. 294446 4. 003088
Mon. 629-----	45 00 57.737 73 03 57.150	271 18 22.2 316 37 15.8	91 20 15.2 136 38 06.8	Mon. 625----- Saint-----	3, 500. 0 2, 296. 9	3. 544073 3. 361143
Mon. 632 and 633--	45 00 48.553 73 11 36.887	44 45 37.5 263 59 50.3 276 44 07.9	224 43 38.5 84 19 06.3 96 50 23.9	Blair----- St. Armand----- Saint-----	5, 233. 9 35, 957. 8 11, 727. 7	3. 718826 4. 555793 4. 069214
Mon. 634-----	45 00 47.359 73 12 38.648	264 08 47.0 268 26 07.2 275 52 05.8	84 28 46.7 88 26 50.9 95 59 05.5	St. Armand----- Mon. 632 and 633-- Saint-----	37, 306. 8 1, 352. 9 13, 068. 0	4. 571788 3. 131280 4. 116208
Mon. 641-A ecc-----	45 00 42.549 73 16 57.798	88 47 15.9 273 35 43.9 316 32 40.6	268 41 55.0 93 45 46.9 136 34 28.5	Mon. 650-A----- Saint----- Blair-----	9, 934. 8 18, 712. 2 4, 864. 6	3. 997160 4. 272126 3. 687043
Mon. 641-A-----	45 00 43.050 73 16 57.829	357 28 55	177 28 55	Mon. 641-A ecc---	15. 49	1. 190162
Fort-----	45 00 23.410 73 21 30.425	95 23 38.4 334 15 33.4	275 21 30.4 154 18 23.0	Mon. 650-A----- Alburg-----	3, 980. 0 12, 122. 9	3. 599887 4. 083606
45th parallel Mon. ecc.	44 59 55.475 73 21 44.305	108 40 18.4 199 25 01.9	288 38 20.2 19 25 11.7	Mon. 650-A----- Fort-----	3, 861. 7 914. 4	3. 586779 2. 961120
45th parallel Mon.---	44 59 55.489 73 21 44.292	33 18	213 18	45th parallel Mon. ecc.	0. 51	9. 7058-10
Mon. 646-----	45 00 38.104 73 21 30.910	88 50 52.5 358 39 33.6	268 48 44.9 178 39 34.0	Mon. 650-A----- Fort-----	3, 952. 6 453. 7	3. 596882 2. 656796



## VERMONT-QUEBEC AND NEW YORK-QUEBEC BOUNDARIES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME—contd.	° ' "	° ' "	° ' "			
Mon. 644 ecc-----	45 00 39.206 73 20 07.990	74 53 32.0 88 53 10.8 88 56 04.2	254 52 33.7 268 50 04.5 268 55 05.5	Fort----- Mon. 650-A----- Mon. 646-----	1,870.0 5,768.7 1,816.1	3.271833 3.761080 3.259147
Mon. 644-----	45 00 39.339 73 20 07.996	358 18	178 18	Mon. 644 ecc-----	4.11	0.614350
Mon. 647-----	45 00 37.500 73 22 18.360	88 47 33.6 268 55 48.7 292 30 06.5	268 45 59.5 88 57 20.9 112 30 40.4	Mon. 650-A----- Mon. 644 ecc----- Fort-----	2,913.3 2,855.4 1,136.3	3.464391 3.455666 3.055490
Havelock-----	45 00 54.436 73 48 52.538	257 19 37.8	77 20 24.8	Covey Hill-----	1,490.71	3.173393
Clinton-----	44 59 50.800 73 48 55.927	182 09 49.3 213 42 24.3	2 09 51.7 33 43 13.7	Havelock----- Covey Hill-----	1,965.8 2,754.5	3.293543 3.440048
Mooers-----	44 59 02.379 73 47 56.146	138 47 02.0 160 21 21.6 183 19 14.4	318 46 19.7 340 20 41.7 3 19 21.5	Clinton----- Havelock----- Covey Hill-----	1,987.3 3,673.1 3,792.4	3.298255 3.565027 3.578914
Bolt near line ecc---	45 00 09.368 73 48 46.476	19 51 35.1 174 32 59.6 217 34 00.8	199 51 28.4 354 32 55.3 37 34 43.5	Clinton----- Havelock----- Covey Hill-----	609.4 1,397.6 2,167.8	2.784900 3.145375 3.336013
Bolt near line-----	45 00 09.370 73 48 46.474	37 34 217 34 01	217 34 37 34 44	Bolt near line ecc-- Covey Hill-----	0.07 2,167.7	8.8439-10 3.335999
Shea-----	45 00 09.328 73 45 23.127	58 21 30.1 83 01 30.4 90 02 08.5 118 47 07.0	238 19 41.9 262 58 59.9 269 59 44.7 298 45 25.9	Mooers----- Clinton----- Bolt near line ecc-- Covey Hill-----	3,937.8 4,695.8 4,453.6 3,572.2	3.595255 3.671711 3.648716 3.552936
Mon. 682-----	45 00 11.520 73 45 25.054	118 08 51 328 02 49	298 07 11 148 02 50	Covey Hill----- Shea-----	3,502.9 79.73	3.544423 1.901627
Mon. 688-----	45 00 09.769 73 48 18.806	88 50 17	268 49 57	Bolt near line-----	606.10	2.782545
Dalgliesh-----	45 05 01.856 74 15 32.842	200 48 53.0 281 10 14.6	20 49 05.2 101 29 54.2	Huntingdon----- Covey Hill-----	1,059.4 37,198.6	3.025046 4.570527
Fee-----	44 59 58.254 74 10 31.993	144 56 20.4	324 52 47.5	Dalgliesh-----	11,454.0	4.058958
Mon. 722-A-----	44 59 30.488 74 10 31.054	178 37 30	358 37 29	Fee-----	857.38	2.933175
Leblanc-----	45 01 44.790 74 20 47.903	228 32 33 283 38 38	48 36 16 103 45 53	Dalgliesh----- Fee-----	9,194.2 13,881.8	3.963513 4.142446
Boulder-----	44 59 09.220 74 19 25.392	159 23 19 205 02 18	339 22 21 25 05 03	Leblanc----- Dalgliesh-----	5,131.1 12,017.2	3.710212 4.079803
Langevin-----	45 00 10.443 74 21 19.352	193 17 59 307 07 07	13 18 21 127 08 27	Leblanc----- Boulder-----	2,992.8 3,131.0	3.476074 3.495685
Brady-----	45 01 00.093 74 19 59.716	48 41 47 142 36 11	228 40 51 322 35 37	Langevin----- Leblanc-----	2,321.7 1,736.9	3.365812 3.239772
Huntingdon south- west base.	45 01 15.740 74 20 46.388	19 42 23 177 52 57 295 17 36	199 42 00 357 52 56 115 18 09	Langevin----- Leblanc----- Brady-----	2,141.1 897.4 1,130.3	3.330627 2.952982 3.053191
Huntingdon north- east base.	45 01 28.617 74 20 24.131	50 47 45 133 48 52 328 44 09	230 47 29 313 48 35 148 44 26	Huntingdon southwest base. Leblanc----- Brady-----	628.86 721.2 1,030.1	2.798554 2.858041 3.012869

## VERMONT-QUEBEC AND NEW YORK-QUEBEC BOUNDARIES—Continued

Station	Latitude and longitude	Azimuth	Back azimuth	To station	Distance (meters)	Logarithm
POINTS SUPPLEMENTARY TO MAJOR SCHEME—contd.	° ' "	° ' "	° ' "			
Mon. 739 ecc-----	44 59 34.072 74 21 07.461	166 56 27 186 03 24 288 55 39	346 56 19 6 03 38 108 56 51	Langevin----- Leblanc----- Boulder-----	1, 152. 6 4, 057. 9 2, 363. 9	3. 061668 3. 608301 3. 373638
Mon. 739-----	44 59 34.200 74 21 07.235	51 29	231 29	Mon. 739 ecc-----	6. 34	0. 801870
Godmanchester Township, southwest corner.	44 59 34.584 74 21 14.620	275 45 08	95 45 13	Mon. 739 ecc-----	157. 61	2. 197599
Cornwall east church Catholic.	45 01 08.042 74 42 45.237	140 58 21. 8 202 51 15. 0	320 53 09. 4 22 56 08. 4	Bonville----- St. Raphael church spire. Huntingdon-----	15, 313. 0 23, 264. 2 37, 017. 0	4. 185059 4. 366688 4. 568401
St. Regis east base--	44 59 57.971 74 39 33.281	117 14 52. 0	297 12 36. 3	Cornwall east church.	4, 727. 5	3. 674634
St. Regis west base--	44 59 22.925 74 40 32.620	138 10 56. 1 230 13 22. 4	318 09 22. 3 50 14 04. 3	Cornwall east church. St. Regis east base--	4, 354. 9 1, 691. 11	3. 638978 3. 228173
Mon. 1 (I. W. C.) (Int. Bdy. Comm. 1923).	45 00 33.599 74 40 16.534	9 10 31. 2 319 15 26. 6	189 10 19. 9 139 15 57. 2	St. Regis west base-- St. Regis east base--	2, 209. 9 1, 451. 5	3. 344380 3. 161827
Mon. 774 (Int. Bdy. Comm. 1923).	44 59 58.142 74 39 40.552	144 15 03. 3 271 53 59. 8	324 14 37. 8 91 54 04. 9	Mon. 1 (I. W. C.)-- St. Regis east base--	1, 348. 7 159. 3	3. 129917 2. 202340
Mon. 3 (I. W. C.) (Int. Bdy. Comm. 1923).	45 00 02.387 74 40 59.702	131 15 36. 5 274 06 38. 8 274 18 53. 2 334 01 55. 9	311 14 21. 9 94 07 39. 9 94 19 49. 2 154 02 15. 1	Cornwall east church. St. Regis east base-- Mon. 774----- St. Regis west base--	3, 073. 9 1, 897. 8 1, 738. 5 1, 354. 9	3. 487688 3. 278239 3. 240183 3. 131918
Mon. 4 (I. W. C.) (Int. Bdy. Comm. 1923).	45 00 15.196 74 42 09.992	154 41 05. 5 284 23 52. 2 307 05 58. 3	334 40 40. 6 104 24 41. 9 127 07 07. 2	Cornwall east church. Mon. 3 (I. W. C.)-- St. Regis west base--	1, 804. 7 1, 589. 4 2, 674. 4	3. 256404 3. 201244 3. 427231
U. S. L. S. No. 8 ecc.	44 59 30.817 74 42 43.445	179 15 05. 6 208 08 14. 6 246 46 37. 2 274 50 45. 4	359 15 04. 3 28 08 38. 2 66 47 50. 5 94 52 17. 9	Cornwall east church. Mon. 4 (I. W. C.)-- Mon. 3 (I. W. C.)-- St. Regis west base--	3, 001. 6 1, 553. 6 2, 472. 6 2, 876. 2	3. 477346 3. 191341 3. 393147 3. 458822
St. Regis church----	45 00 10.629 74 38 34.532	85 26 20. 6 107 37 13. 7 107 54 57. 4	265 24 38. 0 287 36 01. 6 287 52 00. 2	Mon. 3 (I. W. C.)-- Mon. 1 (I. W. C.)-- Cornwall east church.	3, 189. 7 2, 343. 7 5, 769. 0	3. 503745 3. 369902 3. 761102
Cornwall west church Catholic.	45 01 15.978 74 43 57.302	145 17 41. 1 278 49 09. 5 292 35 08. 7 307 52 55. 7	325 13 19. 7 98 50 00. 5 112 38 15. 4 127 55 20. 5	Bonville----- Cornwall east church. St. Regis east base-- St. Regis west base--	14, 169. 5 1, 596. 8 6, 263. 1 5, 681. 0	4. 151354 3. 203245 3. 796792 3. 754424
U. S. L. S. No. 13 (Int. Bdy. Comm. 1923).	44 59 22.394 74 40 30.489	109 21 45	289 21 44	St. Regis west base--	49. 49	1. 694495
U. S. L. S. No. 8 (Int. Bdy. Comm. 1923).	44 59 30.588 74 42 44.411	251 32 06	71 32 07	U. S. L. S. No. 8 ecc.	22. 30	1. 348349

## DESCRIPTIONS OF TRIANGULATION STATIONS

### SOURCE OF THE ST. CROIX RIVER TO LAKE POHENAGAMOOK, MAJOR SCHEME AND POINTS SUPPLEMENTARY TO IT

**Spring Hill** (Maine, Aroostook County; United States Coast and Geodetic Survey, 1889; J. L. Rannie, 1916).—Near the center of Amity Township and west of the Houlton-Baring road, on a large flat-topped hill, known as Spring Hill. The station is about 300 feet south of the highest part of the hill, on the farm owned by Percy Boles.

Station mark: Bronze disk, lettered "U. S. & C. B. Survey" set in a hole drilled in a pear-shaped boulder, whose top is a little above the surface of the ground. A rough triangle, cut in the rock, surrounds the disk.

**Kennedy** (New Brunswick, York County; United States Coast and Geodetic Survey, 1889; J. L. Rannie, 1916).—In North Lake Parish, on the summit of a hill about 3 miles east of initial monument of the international boundary.

Station mark: Standard bronze disk of the United States Coast and Geodetic Survey, set in a hole drilled in a boulder which is  $2\frac{1}{2}$  by 3 feet, its highest part projecting about 6 inches above the ground.

**Pole Hill** (Maine, Aroostook County; United States Coast and Geodetic Survey, 1889; J. L. Rannie, 1916).—In Amity Township, on a low knob known as Pole Hill. It is about 400 feet west of the international boundary and about 4,200 feet north of initial monument at the source of the St. Croix River. The station is on the highest part of the hill on a gray sandstone boulder, the visible part of which is 6 by 3 feet and 2 feet above the ground.

Station mark: Bronze disk lettered "U. S. & C. B. Survey" set in a hole drilled in the boulder, and surrounded by a triangle cut in the rock.

**Union** (New Brunswick, Carleton County; J. L. Rannie, 1916).—In Richmond Parish, on the north half of lot 1 of the sixth tier of lots from the St. John River, on the farm of Alfred T. Henderson. From Green Road station, on the Houlton Branch of the Canadian Pacific Railway, go one-fourth mile south to Mr. Henderson's house and go back (west) along a lane up a hill. One passes a fence corner about one-fourth mile back from the farm buildings just at the final rise at the top of the hill. The station lies about 100 feet southwest of this fence corner in a cultivated field.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet deep, resting on bedrock.

**Linneus** (Maine, Aroostook County; J. L. Rannie, 1916).—In Linneus Township, on lot 12, range 5, on a farm owned by Henry Howard. The station is in the middle of a stone fence running back (west) from the farm buildings, about 600 feet from the buildings, and about 600 feet east of the highest part of the hill.

Station mark: Bronze disk set in the top of a long boulder which is firmly set in cement in the middle of a stone fence.

**Ludlow** (Maine, Aroostook County; J. L. Rannie, 1916).—In Ludlow Township, on lot 2 of range 5, on a farm owned by R. D. Stevenson. The station lies on the easterly slope of a hill about 900 feet east of and 60 feet lower than the top of the hill. It is on a rock outcrop about 50 feet north of the north end of a stone fence which runs back (north) from the farm buildings and it is about one-fourth mile from these buildings.

Station mark: Bronze disk cemented in the rock outcrop.

**Richmond** (New Brunswick, Carleton County; J. L. Rannie, 1916).—In Richmond Parish, on Parks Hill on the farm of Charles Parks, in the fifth tier of the township. The hill is the highest in this vicinity and is a rounded, cultivated knoll. The station is on the east side of the stone rubble foundation of a fence which runs north and south.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet below and top about 1 foot below the surface of the ground. A pyramid of boulders rising a foot or two above the surface of the ground was erected over this mark.

**Littleton** (Maine, Aroostook County; J. L. Rannie, 1916).—In Littleton Township, on a hill about the middle of lot 3, range 10, of the south division of the township, on land owned by Oscar Crain. It is on a prominent hill, which is cleared north of the station and covered with small growth to the south.

Station mark: Bronze plug cemented in a rock outcrop.



**Wakefield** (New Brunswick, Carleton County; J. L. Rannie, 1916).—In Wakefield Parish, on the farm of Albert Bell, on lot G of the tier of lots on the north side of the Meduxnekeag River. The station is on a hill which is overtopped by higher hills a short distance to the eastward. It is in the middle of a stone pile in nearly the highest part of a cultivated field, about one-fourth mile north of Mr. Bell's buildings.

Station mark: Bronze disk set in cement which holds together a number of rocks in the center of the stone pile.

**Monticello** (Maine, Aroostook County; J. L. Rannie, 1916).—In Monticello Township, lot 104, on land owned by Ivan Hogan. The station lies on top of a hill about 600 feet east of his house. It is on the highest ground in a cultivated field.

Station mark: Bronze disk cemented in a rock outcrop.

**Wilmot** (New Brunswick, Carleton County; J. L. Rannie, 1916).—In Wilmot Parish, on lot 5 of the tier of lots on the west side of the road running south from Centreville, New Brunswick, and about 4 miles south of Centreville. The station is on Wm. Page's farm about one-half mile west of the farm buildings on the flat top of a hill in the northeast corner of the intersection of a north-and-south and an east-and-west fence, about 50 feet east of the highest point of the hill.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of boulders, rising a foot or two above the surface, was erected over this mark.

**Blaine** (Maine, Aroostook County; J. L. Rannie, 1916).—In "E" plantation, on land known as the Quimby Estate. The station is on the highest point of a hill covered with a heavy growth of hardwood and is about 1 mile north and 2 miles west of the south and east boundaries of the township, respectively. This hill lies about 1 mile northeast of the highest point of a prominent ridge which is somewhat higher than the station. The station is about 1 mile southwest of Mr. Kingsbury's house and is most easily reached from his house.

Station mark: Standard bolt of the Geodetic Survey of Canada cemented in a hole drilled in a depression in bedrock and surrounded by a mass of cement.

**Wicklow** (New Brunswick, Carleton County; J. L. Rannie, 1916).—In Wicklow Parish, on lot 19 of the tier of lots east of tier 3, between tier 3 and the tier of St. John River lots, on land owned by James Forsyth. The station is about 900 feet northeast of Grenfield post office, on the summit of the highest hill within 4 or 5 miles. In 1916 the top of this hill was partly covered with second-growth spruce and balsam.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of boulders about 2 feet high was erected over this mark.

**Mars Hill** (Maine, Aroostook County; J. L. Rannie, 1916).—In Mars Hill Township, about 4 miles east of Mars Hill village, on a very prominent hill known as Mars Hill, which rises 1,200 feet above the surrounding country, and is in the form of a north-and-south ridge about 4 miles long. The station is on the highest peak, and at the south end of the ridge on open bare bedrock.

Station mark: Standard bolt of the Geodetic Survey of Canada set in bedrock.

**Andover** (New Brunswick, Victoria County; J. L. Rannie, 1916).—In Andover Parish. It is located near the southwestern corner of the parish, about 2 miles north of where Riviere des Chutes crosses the international boundary and 2,000 feet east of the international boundary. The land is owned by Elmer Kennedy, and the station is on top of the hill across the fields from his house, 25 feet from the corner of a cleared field.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet deep, resting on bedrock. A pyramid of boulders, rising about 2 feet above the surface, was erected over this mark.

**Presque Isle** (Maine, Aroostook County; J. L. Rannie, 1916).—In Presque Isle Township, lot 61, on land owned in 1916 by Joseph Ireland. It is 2 miles west of Phair, Me., on the east slope of the hill about one-fourth mile back (east) of Mr. Ireland's house. The station is at the north side of a large rock pile.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and whose top is about 1 foot below the surface of the ground. A pyramid of boulders, rising about 2 feet above the surface of the ground, was erected over the mark.

**Caribou** (Maine, Aroostook County; J. L. Rannie, 1916).—In Caribou Township, on lot 48, owned by Elmer Chesley. The hill is quite prominent and is locally known as "Old Higgins Hill," and is about 6 miles from Fort Fairfield, Me. The hill is partly cleared on top and partly covered with a heavy growth of maple. The station is about 100 feet south of the north line of Chesley's farm and about 300 feet east of the highest point of the hill, and may be reached by taking the lane back from Chesley's house to the top of the hill.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of boulders, rising a foot or two above the surface, was erected over this mark.

**Aroostook** (New Brunswick, Victoria County; J. L. Rannie, 1916).—In Andover Parish, on land owned by Simon Ayers. This lot is an irregularly shaped unnumbered piece, described on subdivision plans as the Haskel Sloat property. The hill on which the station is located is the highest in this vicinity, bare on top, with solid rock at the surface. It is about three-fourths mile south of the Aroostook River and one-half mile east of the international boundary. The station is 4 miles east of Fort Fairfield, Me., following the road on the south side of the Aroostook River. At the first house after crossing the international boundary, walk back through the fields and straight up the side of the prominent hill.

Station mark: Bronze disk cemented in a drill hole in solid rock.

**Limestone** (Maine, Aroostook County; J. L. Rannie, 1916).—In Limestone Township, about 2 miles due west of Limestone village and one-fourth mile south of the schoolhouse, in an open field owned by H. Sloan, of Limestone, Me. The station is on level ground, about 450 feet back of the barn and 42 feet south of the center of a lane which leads back from the barn. The distance from the station to the northwest corner of the barn is 437 feet and to the southwest corner of the potato house is 458 feet.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of boulders, rising a foot or two above the surface, was erected over this mark.

**Woodland** (Maine, Aroostook County; J. L. Rannie, 1916).—In Woodland Township, lot 34, on land owned by Henry Akerson. The station is on top of a cleared hill, the highest within 2 miles, but lower than the hills 3 miles to the westward. Driving from Caribou, Me., about  $5\frac{1}{2}$  miles along the New Sweden Road is a small white church on the north side of the road. Follow the side road north from this point past the church about half a mile to the home of Henry Akerson. From Mr. Akerson's house cross the fields to the right to the top of a knoll about 900 feet from the house.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of boulders, rising a foot or two above the surface, was erected over this mark.

**Connor** (Maine, Aroostook County; J. L. Rannie, 1916).—In Connor Township, on an isolated, prominent hill near the north side of the township. The hill is about 2 miles east of the halfway house (10 miles from Van Buren) on the road between Van Buren, Me., and Caribou, Me. The land is owned by the John B. Madigan interests of Houlton, Me.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of boulders, rising a foot or two above the surface, was erected over this mark.

**Caswell** (Maine, Aroostook County; J. L. Rannie, 1916).—In Caswell Township, near the rear of lot 41, on land owned by Eugene Berube. The station is on the top of a hill covered with light brush about one-half mile back of Mr. Berube's house. The hill is the highest in the vicinity, but is not especially prominent. It can be plainly seen from the road passing the house.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground.

**Van Buren** (Maine, Aroostook County; J. L. Rannie, 1915).—In Van Buren Township, about 5 miles on the Bangor & Aroostook Railroad from the town of Van Buren, on lot 4 of the tier of lots along the south side of the township, about one-fourth mile south of the north side of the lot and 600 feet east of the west side of the lot.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of boulders, rising about 2 feet above ground, was erected over the mark.

**St. Leonard** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Leonard Parish, on or near lot 5 of the third tier of lots northeast of St. Leonard, New Brunswick, on land owned by Charles Cyr, of St. Leonard. The hill on which the station lies is a small titlike point at the southwestern end of a ridge which runs east and west. This small hill is not the highest point on the ridge, a flat maple-covered hill half a mile to the northwest being slightly higher.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of boulders, rising a foot or two above the surface, was erected over this mark.

**Grand Isle** (Maine, Aroostook County; J. L. Rannie, 1915).—In Grand Isle Township, on a large flat hill covered in 1915 with a heavy growth of large maple, birch, and beech, about  $3\frac{1}{2}$  miles west of the eastern boundary of the township and 2 miles north of the southern boundary.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of boulders, rising about 2 feet above ground, was erected over the mark.

**Ste. Anne** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In Ste. Anne Parish, on a bare hill near the rear of the second tier of lots back from the St. John River at Quisibis, New Brunswick.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of boulders, about 2 feet high, was erected over the mark.

**Van Buren South Base** (Maine, Aroostook County; J. L. Rannie, 1915).—In Van Buren Township, lot 269, on land owned by Carice Plourde. The station is about 2,300 feet in a southeasterly direction from Mr. Plourde's house, well up the slope of the hills along the St. John River Valley.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of boulders, rising about 2 feet above the surface of the ground, was erected over this mark.

**Van Buren North Base** (Maine, Aroostook County; J. L. Rannie, 1915).—In Van Buren Township, on the southeast half of lot 248. The station is about 350 feet northwest of a road which goes to the back settlements from the St. John River Road near Parent Siding and is about 1,900 feet southwest of Parent Siding.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in a mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of boulders, rising a foot or two above the surface, was erected over this mark.

**Green River** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Basil Parish, on lot 18 of the tier of lots on the east side of Green River, on land owned by Damas Martin. The station is on the highest point of the mountain and is about one-fourth mile from the back or east end of the lot.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of boulders, about 2 feet high, was erected over the mark.

**Madawaska** (Maine, Aroostook County; J. L. Rannie, 1915).—In Madawaska Township, on lot 25, near the western end of the lot. The station is situated on a hill about 4 miles south of the village of Madawaska, at an elevation of approximately 700 feet above the river, or 1,200 feet above sea level. The hill is covered with a heavy growth of maple.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of boulders, about 2 feet high, was piled over the mark.

**Edmund** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Jacques Parish, about 3 miles northwest of Edmundston, New Brunswick, on a conical-shaped hill in the Furline settlement. This hill is about 3 miles north of the St. John River and 2 miles west of the Madawaska River.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**St. Hilaire** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Hilaire Parish, about 5 miles southwest of Edmundston, New Brunswick, on lot 71, tier 4, of the Ovelet settlement, on land owned by Josephal Daigle. The station is situated on the highest point of a range of hills  $1\frac{1}{2}$  miles back from the St. John River.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and about  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark. The southwest corner of lot 18 of the St. John River tier of lots is distant 835 feet, in azimuth  $206^{\circ} 12'$  from the station.

**Second** (Maine, Aroostook County; J. L. Rannie, 1915).—In Madawaska Township, on lot 136, on land owned in 1915 by Remi Herbert, about 1 mile southeast of Madawaska, Me., railroad station. It is about equidistant from the side lines of the lot and about 1 mile south of the St. John River road. The station is situated on the northern slope of the hill in an open field 300 feet north of the woods.

Station mark: Standard copper bolt of the Geodetic Survey of Canada cemented in a hole drilled in a depression, in bedrock, and surrounded by a mass of cement.

**First** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In Madawaska Parish, about 1 mile west of Edmundston, New Brunswick, and about one-half mile north of the St. John River. It is on a hill, which is covered with a heavy growth of spruce, near the back of lot 2 of the tier of lots along the St. John River.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.



**Edmundston Astronomic Station** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In the town of Edmundston, New Brunswick, about 40 feet northeast of the water tank of the Temiscouata Railway, and almost directly across the tracks from the Temiscouata Railway station.

Station mark: No mark was placed at the station. It is 300 feet due north of the center of the astronomic pier of 1908, as found in 1915. The astronomic pier of 1908 is of concrete, 2 feet by 3 feet in cross section and about 2 feet in height. It was set 148.30 feet east and 12.04 feet north of the northeast corner of the Temiscouata Railway station. It has apparently settled about 3 inches to the south and 1 inch to the east since 1908.

**Baker** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Hilaire Parish, about 10 miles west of Edmundston, New Brunswick, and about 4 miles north of the village of Baker Brook, New Brunswick, on lot 123, tier 4, on land owned by Vene Baker.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**Kent** (Maine, Aroostook County; J. L. Rannie, 1915).—In Fort Kent Township, about 4 miles east of Fort Kent, Me., and about  $2\frac{1}{2}$  miles almost due south of Baker Brook, New Brunswick. It is on the highest part of a clearly defined conical-shaped mountain covered with scrub and some maple trees. The station is on lot 8.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**Ledges** (Maine, Aroostook County; J. L. Rannie, 1915).—In St. John Township, about  $1\frac{1}{2}$  miles south of the railway station in Ledges, New Brunswick, on the easterly half of lot "F," on land owned by Arthur V. Daigle. It is about 250 feet west of the east side of the lot and 1,600 feet north of the range line on the south side of the lot. The post at the southeasterly corner of lot "F" is 1,600 feet distant from the station, in azimuth  $342^{\circ} 40'$ . The station is on the highest part of the hill, in the first range of hills on the south side of the valley, almost opposite Ledges. The hill is covered with a heavy growth of maple and small birch.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**Long** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Francis Township, about 8 miles northwest of Ledges, New Brunswick, and about  $2\frac{1}{2}$  miles from Courchesne station on the Canadian National Railway. It is on the highest point of a range of hills on the west side of a brook running into Long Lake, and is about 2 miles south by east of the head of Long Lake.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, rising about 2 feet above ground, was erected over the mark.

**Center** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Francis Parish, about 3 miles north and a little west of Connors, New Brunswick, on the highest point of a range of hills which runs north from the St. John River near Connors. This hill is somewhat flat on top and covered with a heavy growth of maple and birch, with some spruce. It is on the second tract of the New Brunswick Railway Co.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**St. Francis** (Maine, Aroostook County; J. L. Rannie, 1915).—In St. Francis Township, about 2 miles east of the village of St. Francis, Me., and about 1 mile south of the St. John River. It is on the highest point of a ridge which is covered with maple and other small growth, almost opposite the mouth of the St. Francis River.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**Canadian Glazier** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Francis Parish on the second tract of the Canadian National Railway, about 4 miles northeast of the head of Glazier Lake, on the highest point in the immediate vicinity, covered with a growth of maple, birch, spruce, and balsam.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**U. S. Glazier** (Maine, Aroostook County; J. L. Rannie, 1915).—About  $1\frac{3}{4}$  miles west of the head of Glazier Lake, on top of a conical-shaped mountain, the highest point in the vicinity. The mountain is visible from the flat at the mouth of American Touladi Creek, and bears south  $85^\circ$  west, magnetic.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about  $1\frac{1}{2}$  feet high, was erected over the mark.

**Canadian Beau** (Quebec, Temiscouata County; J. L. Rannie, 1915).—In Botsford Township, on lot 37, Concession I, on the highest point of a ridge roughly parallel to the shore of Beau Lake, about 1 mile from the east shore and about 3 miles south of the head of the lake. The station is 245 feet south and 820 feet west of the north and east sides, respectively, of lot 37. The southeast corner of lot 34, range 1, is distant 2,120 feet in azimuth  $202^\circ 55'$  from the station.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in a boulder.

**U. S. Beau** (Maine, Aroostook County; J. L. Rannie, 1915).—In township 19, range 11, about 3 miles west of the head of Beau Lake, about 1 mile south of Jones Lake and 2 miles northwest of Mud Lake, on the highest hill in the vicinity. This hill has a conical or sugar-loaf form, with steep sides, and is covered with maple, birch, and spruce. The station is about one-half mile south of the line between townships 19 and 20.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in a mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**Blue River** (Quebec, Temiscouata County; J. L. Rannie, 1915).—In Botsford Township, about  $1\frac{1}{4}$  miles southeast of the town of Blue River, Quebec, almost on the line between lots 1 and 2 of range 1, and about 2,500 feet west of the line between ranges 1 and 2. It is on a projecting rocky shoulder of the ridge which extends southeast from the village of Blue River. It is about 1,400 feet east of the main road south from Blue River to Beau Lake.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in bedrock.

**Estcourt** (Quebec, Temiscouata County; J. L. Rannie, 1915).—In Estcourt Township, near the line between ranges 1 and 2, probably on lot 4, range 1. It is on the southwest slope back from the top of the first hill of a range running northeast from Lake Pohenagamook, about one-half mile back of the steep part, in a heavy tangle of burned-over spruce and birch. The church at St. Eleuthere is about 2 miles distant, in azimuth  $92^\circ 31' 35''$  from the station.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in bedrock.

**Frontier** (Quebec, Kamouraska County; Maine, Aroostook County; Geodetic Survey of Canada, 1912; J. L. Rannie, 1915).—The station is 8 miles along the international boundary southwest from Estcourt, Quebec.

Station mark: Monument No. 189 of the international boundary.

**Parke** (Quebec, Kamouraska County; Geodetic Survey of Canada, 1912; J. L. Rannie, 1915).—In Parke Township, on lot 31, range 8, about 580 feet northwest of the line between Parke and Pohenagamook Townships and about 400 feet southwest of line between lots 30 and 31. A post on the line between the above townships, marked "VII" on the southwest side and "A" on the northeast side, is situated about 4,800 feet southwest of Pelletier railway station. From this post "Parke" is about 19,380 feet in the direction of the township line (northeast) and about 580 feet northwest of (or at right angles to) this line. The azimuth from the above post to the triangulation station is  $222^\circ 50'$ .

Station mark: Standard copper bolt of the Geodetic Survey of Canada.

**Chabot** (Quebec, Kamouraska County; J. L. Rannie, 1915).—In Chabot Township, on lot 55, range 4, about 8 miles northeast of St. Eleuthere, on a hill covered with birch and spruce, 75 feet from the northeast and 3,410 feet from the southeast side of lot 55, on land owned by Francois Michaud.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in bedrock. The post on the line between ranges 4 and 5 and between the townships of Chabot and Pohenagamook is distant 3,540 feet, in azimuth  $299^\circ 45'$ , from the station.

**Monument 1** (initial monument; Maine, Aroostook County; New Brunswick, York County; United States Coast and Geodetic Survey, 1889; J. L. Rannie, 1916).—This is international boundary monument No. 1, also known as "initial monument," at the head of the St. Croix River and the southern end of the "North Line." The shaft of the monument is of cast iron, 12 inches square at the base, 6 inches square at the top, and 5.4 feet high above the base. The base is of concrete, 5 feet square and 5 feet high above the ground. The shaft leans  $1\frac{3}{8}$  inches west and 2 inches south.

The station is the center of the iron shaft where it joins the concrete base.

**Westford** (Maine, Aroostook County; J. L. Rannie, 1916).—In Hodgdon Township, on lot 8, range 5, on the farm of Murray Esterbrook. It is about 600 feet south of the highest part of a prominent hill known as "Westford Hill." The station occupies the point of a small rock outcrop about 900 feet northwest of the farm buildings.

Station mark: A bronze plug cemented in the solid rock outcrop.

**Porter** (Maine, Aroostook County; J. L. Rannie, 1916).—In Monticello Township, on lot 68, on land owned by Mrs. Burleigh Porter. The station lies on the southerly slope of a rise about 300 feet south of and 4 feet lower than the top of the hill, on the north side of a large stone pile in a cultivated field, one-fourth mile north of Mrs. Porter's house.

Station mark: Standard bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top about 1 foot below the surface of the ground. A pyramid of bowlders, rising a foot or two above the surface, was erected over this mark.

**Lunnon** (Maine, Aroostook County; J. L. Rannie, 1916).—In Monticello Township, on land owned by William London. The station is on top of a bare hill, in a cultivated field about  $1\frac{1}{2}$  miles south and  $2\frac{1}{2}$  miles east of the village of Monticello, Me., and about 1,000 feet west of the branch of the Meduxnekeag River, which flows through Monticello village.

Station mark: Bronze disk set in solid rock.

**Easton** (Maine, Aroostook County; J. L. Rannie, 1916).—In Easton Township, near the south side of lot 20, on land owned by H. P. Hoyt. To reach the station from Fairmont, Me., go south about a mile to the first turn to the left (east). Follow this road about  $1\frac{1}{2}$  miles to the top of a cleared hill. The station is on the east slope of this hill, about 450 feet from the road, on an outcropping ledge of rock.

Station mark: Bronze disk cemented in the rock.

**Watson** (Maine, Aroostook County; J. L. Rannie, 1916).—In Fort Fairfield Township, on lot 26 or 28, on land owned by Alvie Spiney. The station may be found by following the Presque Isle road from Fort Fairfield, Me., for one-half mile and taking the first turn to the right (west). After following this road for about 3 miles, one passes over a cleared hill. The station is about 900 feet up the hill, through the fields to the left (south), on a ledge of rock on top of a cleared hill.

Station mark: Bronze disk cemented in an outcropping ledge of rock.

**Falls** (New Brunswick, Victoria County; J. L. Rannie, 1916).—In Grand Falls Parish, in the California settlement, on one of the lots 38 to 41. It lies in the center of a rock pile on the highest point of a prominent bare hill known as Old Langly Hill, owned by Sandy Hearsy, of Fort Fairfield, Me. The hill is about 1 mile east of the international boundary. The station is 9 miles from Aroostook Junction, New Brunswick, by the road through Four Falls north to the California settlement; or from Limestone, Me., it is  $2\frac{1}{2}$  miles south from the village, then about 3 or 4 miles east on the road to Four Falls, New Brunswick.

Station mark: Bronze disk set in cement in a rock pile.

**Grand** (New Brunswick, Madawaska County; J. L. Rannie, 1916).—In St. Andre Parish, on lot 151 of the tier of St. John River lots, on land owned by Noel B. Gervais. The station is near the top of the ridge in a cleared field about a mile back (northeast) from the St. John River road.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete whose bottom is about  $3\frac{1}{2}$  feet and top 1 foot below the surface of the ground. A pyramid of bowlders, rising a foot or two above the surface, was erected over this mark.

**Hamlin** (Maine, Aroostook County; J. L. Rannie, 1916).—In Hamlin Township, on the southeast side of lot 319, owned by Joseph Langlais, on the line between lot 319 and the one to the southeast.

Station mark: Bronze disk set in cement in rocks forming the foundation of the loose rubble wall separating the two lots.

**Cyr** (New Brunswick, Madawaska County; J. L. Rannie, 1916).—In St. Leonard Parish, on lot 134, of the tier of St. John River lots, on land owned by John Cyr. The station may be reached from St. Leonard, New Brunswick, by driving 5 miles toward Grand Falls, New Brunswick, to the house of John Cyr. The station is on the top of a bare hill (wooded to the north) about half a mile back (northeast) of Mr. Cyr's house.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and about  $1\frac{1}{2}$  feet deep, resting on bedrock. A pyramid of bowlders, 2 feet high, was erected over the mark.

**Edmundston Bench Mark** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—At Edmundston, New Brunswick, in the face of the rock cut at the north side of the railway track, 140 feet west of the Canadian Pacific Railway station.

Station mark: Bench mark bolt of the Geodetic Survey of Canada, stamped "B. M. No. 60 B."

**Clair** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—In St. Francis Parish, about  $2\frac{1}{2}$  miles west of Fort Kent, Me., and about  $1\frac{1}{2}$  miles north of the St. John River. It is on Clair Mountain, which is the highest of the bordering hills on the north side of the St. John Valley, between Ledges and Clair, New Brunswick. The station is on the highest part of the flat top of the hill, somewhat nearer the south slope.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small bowlders, about 2 feet high, was erected over the mark.



**Fort** (Maine, Aroostook County; J. L. Rannie, 1915).—In Fort Kent Township, on lot 27, about  $2\frac{1}{2}$  miles southwest of Fort Kent, Me. It is on the northerly slope of some low hills on the south side of the St. John Valley. The station is beside a fence in an open field, 3 feet east of the west side of lot 27 and 3,990 feet south of the northwesterly corner of lot 26.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in an irregular mass of concrete about  $1\frac{1}{2}$  feet in diameter and  $1\frac{1}{2}$  feet high, resting on bedrock. A pyramid of small boulders, about 2 feet high, was erected over the mark.

**Baker Brook Bench Mark** (New Brunswick, Madawaska County; J. L. Rannie, 1915).—About one-fourth mile west of Baker Brook, New Brunswick. It is in the east face of the concrete retaining wall behind the east abutment of the plate-girder bridge on the Canadian National Railway, and is north of the railway track.

Station mark: Bench-mark bolt of the Geodetic Survey of Canada, stamped "No. 264 B."

**Twin** (Maine, Aroostook County; J. L. Rannie, 1915).—On the west side of and about  $1\frac{1}{2}$  miles from the head of Glazier Lake, on the highest part of the mountain, which is conical in shape and rises sharply out of a valley.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in a large boulder and surrounded by a triangle chiseled in the rock.

**Dave** (Quebec, Temiscouata County; J. L. Rannie, 1915).—In Estcourt Township, about  $2\frac{1}{2}$  miles west of Blue River, Quebec, about 750 feet north of the main road from Blue River to Estcourt, on lot 57, range 4, and about 450 feet south of the line between lots 56 and 57. It is on the southwest slope of a round cleared shoulder of a hill about one-fourth mile northwest from the house on lot 57.

Station mark: Standard copper bolt of the Geodetic Survey of Canada set in a large boulder.

#### REFERENCE MONUMENTS DETERMINED FROM MINOR SCHEME, ST. JOHN RIVER

**Reference Monument C-1** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 3 miles southeast of Martins, a post office and station on the Canadian National Railway. It is directly across the St. John River from monument 117, 45 feet back from the top of the Canadian Pacific Railway cut, and 5 feet inside the right-of-way fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument S-1** (Maine, Aroostook County; F. H. Brundage, 1917).—About 2 miles southeast of Hamlin, Me., post office. It is 410 feet up river from monument 117 and 8 feet from the top of the high bank along the St. John River.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-2** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $2\frac{1}{2}$  miles southeast of Martins, a post office and station on the Canadian National Railway. It is directly across the river from S-2, a large reference monument. It is at the top of the river bank, south of the Canadian Pacific Railway, and about 6 feet inside of the right-of-way fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-4** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 2 miles southeast of Martins, a post office and station on the Canadian National Railway. It is directly across the river from S-4, a large reference monument. It is 114 feet down river from the center of a concrete culvert under the Canadian Pacific Railway. It is on the north side of the railway track, 4 feet inside the right-of-way fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-5** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $1\frac{1}{2}$  miles southeast of Martins, a post office and station on the Canadian National Railway. It is about 180 feet upstream from the upstream end of a Canadian Pacific Railway trestle. It is on the north side of the railway, 1.5 feet inside the right-of-way fence, and 8 feet upstream from a gate in the fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-6** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About three-fourths mile southeast of Martins, a post office and station on the Canadian National Railway. It is on the north side of the Canadian Pacific Railway, 2 feet inside the right-of-way fence. It is 29.5 feet upstream from a fence which runs north to a point near the Canadian National Railway crossing of the main highway.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-8** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—Opposite the middle of Ryan or Six-Mile Island. It is on the north side of the Canadian Pacific Railway, and 2 feet inside the right-of-way fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-9** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile upriver from Martins, a post office and station on the Canadian National Railway. It is on the Canadian National Railway right of way, at the top of a deep cut, and is 2 feet inside the fence on the river side of the track.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-10** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $1\frac{1}{4}$  miles upriver from Martins, a post office and station on the Canadian National Railway. It is nearly opposite S-11, a large reference monument. It is on a low knoll, 77 feet from the shore of the St. John River and 2 feet upriver from a fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-12** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $4\frac{1}{2}$  miles southeast of St. Leonard, New Brunswick. It is directly across the St. John River from S-13, a large reference monument. It is 50 feet from the river and 10 feet lower than the top of the bank.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-13** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $4\frac{1}{4}$  miles southeast of St. Leonard, New Brunswick. It is directly across the St. John River from S-14, a large reference monument. It is 2 feet upriver from a fence which separates two farms, and 8 feet from the top of the river bank.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-14** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 4 miles southeast of St. Leonard, New Brunswick. It is directly across the St. John River from S-15, a large reference monument. It is 2 feet upriver from an old rail fence and 10 feet from the top of the high river bank.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-15** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $3\frac{3}{4}$  miles southeast of St. Leonard, New Brunswick. It is about 800 feet down river from the mouth of Nine Brooks Creek and directly across the St. John River from S-16, a large reference monument. It is on the top of the high river bank, 1 foot upriver from a fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-16** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $3\frac{1}{4}$  miles southeast of St. Leonard, New Brunswick. It is about 2,000 feet upriver from the mouth of Nine Brooks Creek and about 800 feet down river from the foot of Kings Island. It is 1 foot inside the Canadian Pacific Railway right-of-way fence on the river side of the track, and about 235 feet down river from an old road leading to an abandoned ferry.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square is flush with the surface of the ground.

**Reference Monument C-18** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 2 miles southeast of St. Leonard, New Brunswick, and about three-fourths mile down river from the church at L'Eglise. It is on the Canadian National Railway right of way, 1.5 feet inside the fence, and 75 feet upriver from the point where this railway and the Canadian Pacific have a right-of-way fence in common.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-19** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $1\frac{1}{2}$  miles southeast of St. Leonard, New Brunswick, and one-half mile down river from the church at L'Eglise. It is 1.5 feet inside the right-of-way fence of the Canadian National Railway, on the side of the track next to the highway.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-20** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile southeast of St. Leonard, New Brunswick, and about 1,200 feet upriver from the church at L'Eglise. It is between the highway and the Canadian National Railway, at the top of the steep bank which slopes down to the track, 3 feet outside the railway fence and 3 feet upriver from an old rail fence which separates two farms.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-21** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About one-half mile southeast of the Van Buren-St. Leonard highway bridge. It is about 400 feet from the Canadian National Railway and is between it and the river. It is about 400 feet upriver from a small cemetery and 2 feet toward the river from a rail fence which parallels the river.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Van Buren, Me., Highway Bridge Boundary Point.**—On the international highway bridge which crosses the St. John River between Van Buren, Me., and St. Leonard, New Brunswick. The middle of the downstream face of a vertical post of the downstream bridge truss at the height of the railing. This vertical member of the truss is 102.3 feet from the center of the pier supporting the United States end of the main span and 222.8 feet from the pier supporting the Canadian end. A white line was painted on the post at the point described.

**Reference Monument C-23** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—Directly across the St. John River from St. Bruno's Catholic Church in Van Buren, Me. It is at the edge of a road which leads to an old ferry and which at this point is parallel to the river. It is on the side of the road next to the river and is about 230 feet northwest of the railroad crossing.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument S-25** (Maine, Aroostook County; F. H. Brundage, 1917).—About halfway between the highway bridge and the railroad bridge at Van Buren, Me. It is between the Bangor & Aroostook Railroad and the river, about 130 feet from the railroad and about 280 feet from the river. It is 1.5 feet down river from a log fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-24** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1,900 feet down river from the railroad bridge which crosses the St. John River just north of Van Buren, Me. It is 510 feet down river from a road which leads to an old ferry. It is at the edge of a plowed field, 4 feet from the edge of the high bank of the river.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-25** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 600 feet upriver from the railroad bridge which crosses the St. John River just north of Van Buren, Me. It is 10 feet from the top of the high bank of the river.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Keegan, Me., Railroad Bridge Boundary Point.**—On the railroad bridge which crosses the St. John River near Keegan, Me. It is the middle of the upstream face of the middle vertical member of the upstream truss of the middle span. The point is marked by a patch of white paint about 7 inches square.

**Reference Monument C-27** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 900 feet down river from the mouth of Grand River, which flows into the St. John River opposite Keegan, Me. It is directly across the river from S-29, a large reference monument. It is 10 feet back from the top of the river bank.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-28** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—Directly across the St. John River from Keegan, Me., and about 1,000 feet upriver from the mouth of Grand River. It is about 120 feet from the St. John River on the high ground between the river and a long narrow pond.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.



**Reference Monument C-29** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—Directly opposite the middle of the first island just above Keegan, Me. It is at the top of the river bank about 60 feet from the water's edge.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument S-31** (Maine, Aroostook County; F. H. Brundage, 1917).—About one-half mile upriver from Keegan, Me., opposite the foot of the upper island of Les Trois Isles. It is 15 feet back from the top of the high river bank. A reference mark, consisting of an iron pin, whose top is flush with the surface of the ground, is distant 5.76 feet on the line to reference monument C-29.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-30** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About one-half mile north of the mill at Keegan, Me. It is about 250 feet upriver from the head of the upper island of the group known as Les Trois Isles. It is at the top of the river bank and about 40 feet from the water's edge.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-31** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About one-half mile south of Siegas, New Brunswick. It is on the edge of the high river bank, about 850 feet downstream from the mouth of the Siegas River and just upstream from a small ravine.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument S-34** (Maine, Aroostook County; F. H. Brundage, 1917).—About 2 miles northwest of Keegan, Me. It is on the down river edge of the road leading from Violette, a flag station on the Bangor & Aroostook Railroad, to the Van Buren-Fort Kent highway. It is just inside the railroad right-of-way fence and is on the south side of the railway track.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-33** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About three-fourths mile west of Siegas, New Brunswick. It is on the edge of the high bank of the St. John River, about 3,000 feet upstream from the mouth of Siegas River and just downstream from a small ravine.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-34** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile west of Siegas, New Brunswick. It is about 800 feet upstream from the foot of the lower part of La Septieme Isle, about 50 feet down river from a deep ravine, and about 160 feet from the water's edge.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-35** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1½ miles northwest of Siegas, New Brunswick. It is between the Canadian National Railway and the St. John River, directly opposite the point where the highway crosses the Canadian Pacific Railway. It is close to a fence which runs from the river to the Canadian Pacific Railway, and is about 90 feet from the track of the Canadian National Railway.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-36** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile downstream from the church at Ste. Anne de Madawaska. It is near the support on the Canadian shore of the ferry near Parent Siding, Me., a station on the Bangor & Aroostook Railroad. It is 2 feet east of a fence on the line between two farms and about 150 feet from the river.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-38** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About one-half mile down river from Quisibis, New Brunswick, a station on the Canadian National Railway. It is about 700 feet upstream from the Canadian National Railway bridge across Quisibis River, and is between the river and the railway, 1 foot outside of the right-of-way fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-40** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About three-fourths mile downstream from Theriault, New Brunswick, a station on the Canadian National Railway. It is on the line between two farms and is about 50 feet back from the top of the steep bank of the St. John River.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-42** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile northwest of Lille, Me., and about 1,100 feet downstream from the foot of Thibadeau Island. It is on the line between two farms and is near the top of a steep bank about 500 feet back from the St. John River.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-46** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 2 miles northwest of Green River, New Brunswick. It is on the line between two farms and is about 20 feet back from the top of the high bank of the St. John River.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument 134-A** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile upriver from St. Basil, New Brunswick, near the center of a small island whose flat surface is about 5 feet above the level of the St. John River at its ordinary stage.

Station mark: Standard 8-inch bronze post set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-51** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About three-eighths mile upstream from the church at St. Basil, New Brunswick. It is about 300 feet north of the Canadian Pacific Railway and 30 feet southwest of the southwest corner of a large barn. It is in a jog in an east-and-west rail fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-57** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—In the field in which the Edmundston cemetery is located, about three-fourths mile upriver from Edmundston, New Brunswick, and about 600 feet north of the highway. It is at the north edge of the clearing about midway between the north and south boundaries of the field.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-58** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile upriver from Edmundston, New Brunswick, and about 2,000 feet down river from the mouth of Two Mile Brook. It is between the Temiscouata Railway and the main highway along the St. John River, at the top of the high railroad cut, close to the right-of-way fence.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument C-65** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $1\frac{1}{2}$  miles north of St. Hilaire, New Brunswick, and about 700 feet west of the highway along the St. John River. It is about 850 feet upriver from C-64, a large reference monument, and is at an elevation of about 15 feet above it.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument 151-A** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About one-fourth mile southeast of Baker Brook, New Brunswick, on the highest part of a low island in the St. John River just below Baker Island. The island is entirely under water during the spring floods.

Station mark: Standard 8-inch bronze post set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument 159-A** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About 1 mile southwest of Ledges, New Brunswick, and about one-half mile downstream from Savage Island. It is on the farthest rock downstream of a group of three rocks in the St. John River, all on the Canadian side of the boundary.

Station mark: Standard 8-inch bronze post set in a hole drilled in the rock. The mark was set in a depression in the rock as a protection against floating ice and logs.

**Reference Monument 159-B** (Maine, Aroostook County; F. H. Brundage, 1917).—About 1 mile southwest of Ledges, New Brunswick, and about one-half mile downstream from Savage Island. It is on the rock in the St. John River nearest the United States shore, about 250 feet south of reference monument 159-A.

Station mark: Standard 8-inch bronze post set in a hole drilled in the rock. The mark was set in a pothole about 2 feet deep as a protection against floating ice and logs.

**Reference Monument 163-A** (New Brunswick, Madawaska County; F. H. Brundage, 1917).—About  $1\frac{1}{2}$  miles down river from Wheelock, Me., on the highest part of a long, low island near the Canadian shore.

Station mark: Standard 8-inch bronze post set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

**Reference Monument S-115** (Maine, Aroostook County; F. H. Brundage, 1917).—About three-fourths mile north of St. Francis, Me., on the southwest bank of the St. Francis River, near its mouth. It is opposite the southwest end of Kendall Island, 38 feet from the water's edge and about 15 feet in elevation above the surface of the river at an ordinary stage. It is at the edge of small second-growth birches and poplars.

Station mark: Standard bronze disk set in a 3-foot concrete post whose top surface, 12 inches square, is flush with the surface of the ground.

#### LAKE POHENAGAMOOK TO VERMONT-QUEBEC BOUNDARY, MAJOR SCHEME

**Leverrier** (Quebec, L'Islet County; Geodetic Survey of Canada, 1914; Jesse Hill, 1922).—In Leverrier Township, near the southerly corner, 4 miles northeast of Lac Frontiere, Quebec, on the highest point of a rounded hill known as Sugar Loaf.

Station mark: A three-fourths-inch copper bolt leaded in a drill hole in rock. Three reference bolts are leaded in drill holes in bowlders, as follows: No. 1, azimuth  $223^{\circ} 49'$ , distance 60.20 feet; No. 2, azimuth  $291^{\circ} 30'$ , distance 81.08 feet; and No. 3, azimuth  $318^{\circ} 08'$ , distance 73.80 feet. Monument 269 is 768.33 feet distant in azimuth  $320^{\circ} 09' 28''$ , from the station.

**Talon** (Quebec, Montmagny County; Geodetic Survey of Canada, 1914; Jesse Hill, 1922).—In Talon Township, about 6 miles northwest of Lac Frontiere, Quebec, on the summit of a high detached mountain. The station is about 10 feet east of the highest point, on bare rock.

Station mark: A three-fourths-inch copper bolt leaded in a drill hole in rock.

**Standon** (Quebec, Dorchester County; Geodetic Survey of Canada, 1914; Jesse Hill, 1922).—On lot 3, range 14, of Standon Township, about 6 miles south of St. Philemon, Quebec, and 15 miles northwest of St. Camille, Quebec, on the summit of a large, high, wooded mountain with steep sides. The station is on the highest part of the mountain, from which three spurs run, one northwest, one east, and one south.

Station mark: A three-fourths-inch copper bolt leaded in rock from which the loam has been removed.

**Bonnet** (Quebec, Bellechasse County; Jesse Hill, 1922).—In Roux Township,  $3\frac{1}{2}$  miles southwest of St. Magloire, Quebec, 7 miles northwest of St. Camille, Quebec, on an isolated peak called Mount Bonnet, which has a large cross erected on its summit. The station is on the highest point of the top on bare rock.

Station mark: The center of the base of the cross which is set in the rock. The reference mark is a bronze disk set in cement in a depression in the rock, distant 6.43 feet, in azimuth  $299^{\circ} 02'$ , from the center of the station.

**Hardwood Mountain** (Maine, Somerset County; Jesse Hill, 1922).—In township 9, range 18, on the summit of Hardwood Mountain, about  $1\frac{1}{4}$  miles east of the point where the South Line intersects the Southwest Branch of the St. John River. The station is the center of a fire lookout tower about 80 feet high.

Station mark: A bronze disk set in a concrete base. Distances to the inside corners of the four foundation piers of the tower are as follows: Northwest pier, 7.45 feet; northeast pier, 7.35 feet; southeast pier, 7.20 feet; southwest pier, 7.35 feet.

**Maheux** (Quebec, Beauce County; Jesse Hill, 1922).—In Metgermette North Township,  $4\frac{1}{2}$  miles east of St. Zacharie, Quebec, about one-third mile south from the right-angle turn in the road, about 1 mile west of the Southwest Branch of the St. John River. The station is about 200 feet west of the road on a high ridge in a field about 850 feet south of Leonce Maheux's farmhouse.

Station mark: A bronze disk cemented in a drill hole in bare rock ledge.

**Megantic** (Quebec, Frontenac County; Geodetic Survey of Canada, 1909; Jesse Hill, 1915).—In Chesham Township, on Megantic Mountain, 10 miles south of Milan, Quebec. The station is located on the south peak on the east side of the range. A small Catholic church is located about 100 feet southeast of the station.

Station mark: A three-fourths inch copper bolt.

**Linieri** (Quebec, Beauce County; Geodetic Survey of Canada, 1909; Jesse Hill, 1922).—In Linieri Township, about 2 miles east along the international boundary line from Moose River line house on the "Old Canada Road," 15 miles north of Jackman, Me. The station is near the boundary, on the summit of a flat hill.

Station mark: A three-fourths inch copper bolt set in rock 6 inches below the surrounding surface of the ground. Monument 348-23 is 118 feet distant, in azimuth  $329^{\circ} 58'$ , from the station.



**Bald** (Maine, Somerset County; Jesse Hill, 1915).—In Bald Mountain Township, on Bald Mountain, about 10 miles north of Jackman, Me. It is centered under the 15-foot lookout tower of Bald fire station, which is on the highest point of the west peak.

Station mark: A bronze disk wedged firmly in a drill hole in rock.

**Ste. Cecile** (Quebec, Frontenac County; Jesse Hill, 1915).—In Whitton Township, on the southwest end of Little Megantic Mountain, about 1 mile northwest of Ste. Cecile railway station on the Quebec Central Railway, and 10 miles north-northwest of Lake Megantic. The station is on the highest point of the ridge, on a large boulder 6 feet long and 3 feet wide.

Station mark: A bronze disk cemented in a drill hole in a boulder.

**Kibby** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 1, on Kibby Mountain, about 10 miles south of Skinner, Me., post office, and about 4 miles east of the international boundary. The station is on the highest point of the mountain and is centered under the fire station lookout tower.

Station mark: A bronze disk cemented in a drill hole in rock.

**Snow** (Maine, Franklin County; Jesse Hill, 1915).—In township 6, range 2, on Snow Mountain, about 2 miles east of Big Island; on the Megantic fish and game preserve, about 12 miles southeast of Woburn, Quebec. The station is centered under the 30-foot lookout tower of Snow fire station, which is on the highest point of the mountain.

Station mark: A bronze disk cemented in a depression about 8 inches below the surface of the ledge.

**Hughey** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on a high rock ridge, one-third mile east of Boundary Siding, Quebec, railroad station, and about 300 feet south of the international boundary. The station is on the west slope of the ridge, about 125 feet southwest of the top and about 200 feet west of a draw that passes through the ridge.

Station mark: A bronze disk cemented in a drill hole in rock.

**Traverse Station 69=H** (Maine, Franklin County; J. D. Craig, 1919).—This station is on the highest point of a high spur of a ridge over which the international boundary passes, and is about 1,000 feet southwest of monument 390.

Station mark: A copper bolt set in rock.

**Moccasin** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 1, on the second peak east of monument 411 of the boundary. The station is located on the summit of the ridge about 250 feet south of the north end of the ridge.

Station mark: A bronze disk cemented in a drill hole in solid rock.

**Bump** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 2, on a high peak about three-fourths mile north-northeast of monument 410 and about  $1\frac{1}{2}$  miles southeast of Van Dyke's old lumber camps which are located at the forks of Merrill Brook. The station is on the highest part of the hill.

Station mark: A bronze disk cemented in a drill hole in a large boulder buried in the earth.

**Layton** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 1, on the highest point of a high hill of about 3,200 feet elevation; about  $1\frac{3}{4}$  miles south of Lowelltown, Me., and about 2 miles northeast of monument 410.

Station mark: A bronze disk cemented in a hole drilled in a large rock.

**Merrill** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 2, on the high mountain, about  $1\frac{1}{4}$  miles south-southeast of Van Dyke Mountain and one-half mile east of monument 407, and north of the source of Merrill Brook. The station is on the northeast end of the top of the mountain and about one-fourth mile from the nearest point of the boundary.

Station mark: A bronze disk cemented in a drill hole in an 80-pound rock with loose rocks piled around it.

**Van Dyke** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 2, on the top of Van Dyke Mountain which is the highest cone about 2 miles west of Lowelltown, Me., and between Merrill and Mill Brooks. The station is on the west edge of the top.

Station mark: A bronze disk cemented in a drill hole in rock.

**Wait** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on a high, timbered hill about  $1\frac{1}{4}$  miles south of Boundary Siding, Quebec, railway station, 650 feet southeast of monument 403. The station is on the northeast side of the top of the hill.

Station mark: A bronze disk cemented in a drill hole in a 15-inch square rock.

**Lowell** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on a rocky hill about  $1\frac{1}{2}$  miles northwest of Lowelltown, Me., and about one-half mile northeast of the Canadian Pacific Railway. The station is about 20 feet southwest of the highest point of the hill.

Station mark: A bronze disk cemented in a drill hole in rock.

**Dome** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on top of the second rock ridge  $1\frac{1}{2}$  miles southeast of Boundary Siding, Quebec, railway station; about  $2\frac{1}{2}$  miles north-northwest of Lowelltown, Me., and about one-third mile east of the railroad track. The station is on the highest point of the ridge.

Station mark: A bronze disk cemented in a drill hole in rock.

**Dean** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on the southwest slope of the first rock ridge one-half mile southeast of Boundary Siding, Quebec, railway station. The station is about 140 feet south-southwest of the top of the ridge, and is just west of a draw that cuts through the ridge.

Station mark: A bronze disk cemented in a drill hole in rock.

**Boundary** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on top of a rocky hill about one-third mile south of Boundary Siding, Quebec, railway station, and about 300 feet east of the international boundary. The station is on the highest point of the hill.

Station mark: A bronze disk cemented in a drill hole in rock.

**Lowelltown South Base** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on the west edge of the fill of the Canadian Pacific Railway about 220 feet south of the north end of the third curve south of Boundary Siding railway station.

Station mark: A stake driven firmly in the ground. The reference mark is a bronze disk cemented in a drill hole in rock, and is 19.46 feet distant, in azimuth  $103^{\circ} 53'$ , from the station.

**Lowelltown North Base** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, on the west side of the fill of the Canadian Pacific Railway about 200 feet north of the south end of the second curve south of Boundary Siding railway station.

Station mark: A stake driven firmly in the ground. The reference mark is a bronze disk cemented in a drill hole in rock, and is 22.95 feet distant, in azimuth  $72^{\circ} 32'$ , from the station.

**Gosford** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the summit of Gosford Mountain, about 6 miles south of Woburn, Quebec. The station is near the east side of the top and about 30 feet from the highest point.

Station mark: A bronze disk cemented in a drill hole in a large rock, that is firmly set among small rocks which form the top of the peak.

**Woburn** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the highest point of the high mountain about 2 miles west of Woburn, Quebec, and about one-half mile south of the road to Chesham, Quebec.

Station mark: A bronze disk cemented in a drill hole in rock.

**Rump** (Maine, Oxford County; Jesse Hill, 1916).—In township 5, range 5, on Rump Mountain (known also as Camels Rump), over which the Maine-New Hampshire line passes, and about 7 miles south of monument 475, which is the Maine-New Hampshire corner. The station is located on the highest point of the highest peak of the mountain.

Station mark: A bronze disk cemented in a drill hole in outcropping rock.

**Bon Durban** (New Hampshire, Coos County; Jesse Hill, 1916).—In Pittsburg Township, on Bon Durban Mountain, 5 miles east of the village of Chartierville, Quebec, three-fourths mile north of monument 477. The station is on the southeast side of the top and about 30 feet east of the boundary.

Station mark: A bronze disk cemented in a long flat rock that was set in mossy loam. Monument 476–21 is 67.94 feet distant, in azimuth  $105^{\circ} 16'$ , from station.

**Pros** (Quebec, Compton County; F. H. Brundage, 1916).—In Emberton Township, 3 miles south-southwest of Chartierville, Quebec, on the eastern hill of the twin peaks known as Prospect Hill, on a rocky hump at the extreme north edge of the summit and the highest point on the hill.

Station mark: Standard bronze disk cemented in a hole drilled in outcropping bedrock. The reference marks are crosses cut in ledge rock at the following distances and azimuths from the station: 18.85 feet,  $12^{\circ} 31'$ ; 5.78 feet,  $65^{\circ} 11'$ .

**Salmon** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, on the highest point of the boundary peak between monuments 478 and 479, near the boundary line.

Station mark: Standard bronze disk set in a hole drilled in a boulder.

**Northwest Knoll** (Quebec, Compton County; F. H. Brundage, 1916).—In Emberton Township, about three-fourths mile northwest of Chartierville, Quebec, and one-half mile north of the road from Chartierville to Sawyerville, Quebec.

Station mark: Standard bronze disk set in a large rock.

**Spect** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, about  $3\frac{1}{2}$  miles southwest of Chartierville, Quebec, on the western hill of the twin peaks known as Prospect Hill. It is on the extreme north-northwest edge of the summit and is about 6 feet lower than the highest point.

Station mark: Standard bronze disk cemented in a hole drilled in outcropping bedrock. The reference marks are crosses cut in ledge rock at the following distances and azimuths from the station: 14.20 feet,  $2^{\circ} 10'$ ; 14.20 feet,  $349^{\circ} 46'$ .

**Bien** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, about 10 feet from the boundary, on the highest ground near monument 489, from which it is distant about 730 feet.

Station mark: Standard bronze disk set in a concrete-filled tile. Reference mark No. 1 is monument 489-6, which bears north  $40^{\circ}$  east, magnetic, from the station and is distant 65.6 feet. Reference mark No. 2 consists of two nails in a blaze on a small silver birch which bears south  $63^{\circ}$  west, magnetic, from the station and is distant 54.09 feet. Reference mark No. 3 consists of two nails in a blaze on a large birch which bears north  $55^{\circ}$  east, magnetic, from the station and is distant 67.54 feet.

**Indian** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, on the northern edge of the top of a high knoll about  $2\frac{1}{2}$  miles west of Deer Mountain at the headwaters of Indian Stream.

Station mark: Standard bronze disk set in rock.

**Howe** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, 50 feet from the boundary line on the most northern knoll of the high ridge between monuments 496 and 497.

Station mark: Standard bronze disk. Reference mark No. 1 consists of three nails in a blaze on a birch which bears south  $69^{\circ}$  west, magnetic, from the station and is 54.46 feet distant. Reference mark No. 2 consists of three nails in a large spruce stump which bears south  $40^{\circ}$  east, magnetic, from the station and is 20.73 feet distant.

**Joe** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, on the western edge of the first high knoll on the boundary going from monument 501 to monument 502.

Station mark: Standard bronze disk set in concrete. The reference mark is monument 501-1 which is distant 79.04 feet, in azimuth  $339^{\circ} 07'$ , from the station.

**Eck** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, on the north end of the high ridge three-fourths mile south-southeast of monument 501.

Station mark: Standard bronze disk cemented in a hole drilled in outcropping rock. Reference mark No. 1 consists of three nails in a blaze on a wild cherry tree which bears south  $24^{\circ}$  east, magnetic, from the station and is 13.03 feet distant. Reference mark No. 2 consists of three nails in a blaze on a spruce tree which bears south  $85^{\circ}$  west, magnetic, from the station and is 35.38 feet distant.

**Hereford** (Quebec, Compton County; Geodetic Survey of Canada, 1909; J. D. Craig, 1917).—In Hereford Township, about 5 miles north of the international boundary and about  $6\frac{1}{2}$  miles northwest of Beecher Falls, Vt. It is on an outcrop on the highest point of a hill, covered (in June, 1909) with thick burned timber and a thin soil; probably on lot 21, between Concessions V and VI.

Station mark: A three-fourths inch copper bolt surrounded by an 8-inch equilateral triangle. The point is referenced by three three-fourths inch bolts leaded in the rock at the following azimuths and distances from the station: Bolt No. 1, azimuth  $172^{\circ} 01' 58''$ , distance 9.7 feet; bolt No. 2, azimuth  $255^{\circ} 45' 38''$ , distance 11.35 feet; bolt No. 3, azimuth  $11^{\circ} 25' 43''$ , distance 8.71 feet.

**Sightly** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north of Malvina, Quebec, about 500 feet west of the north-and-south road which passes through the village of Malvina, and about 1,400 feet south of the east-and-west road from St. Malo. It is on the more northerly summit about 50 feet southwest of a large boulder which is on top of the hill.

Station mark: Standard bronze disk set in concrete in a shallow hole in the ledge. The reference mark is a standard bronze disk set in a hole drilled in outcropping bedrock, distant 44.53 feet, in azimuth  $248^{\circ} 24'$ , from the station.

**Ouilette (South Base)** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about three-fourths mile south of the village of Malvina, Quebec. The station is on a rocky ridge in the pasture on the south side of an east-and-west road and is on the more westerly knoll of two that are very similar in size and shape. It is about 100 feet north of a lane running along a hardwood thicket and it is about 50 feet east of a spruce and fir thicket.

Station mark: Standard bronze disk set in a  $2\frac{1}{2}$ -foot concrete-filled drain tile.

**Metallak** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about 2 miles southeast of Malvina, Quebec, railroad station, on the crest of the divide between Halls Stream and Indian Stream.

Station mark: Standard bronze disk set in concrete. The reference mark is a standard bronze disk set in outcropping bedrock, distant 11.50 feet, in azimuth  $118^{\circ} 32'$ , from the station.



**Crete (North Base)** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile west of Malvina, Quebec, railroad station. The station is on a flat-topped knoll in the pasture of the Crete farm, about 700 feet west of the barn. It is about 30 feet west of a wire fence which separates the pasture from a cultivated field.

Station mark: Standard bronze disk cemented in a hole in outcropping bedrock.

**Corbert** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile north of Malvina, Quebec, railroad station and about 200 feet west of the north-and-south road. It is on a rocky knoll in a cultivated field and is about 40 feet south of an east-and-west fence.

Station mark: A standard bronze disk set in a 2-foot, concrete-filled tile whose top projects 3 inches above the surface of the ground. The subsurface mark is a small bottle on the ledge below the tile.

**Laperle** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township on a rocky knoll 1 mile south-southwest of Malvina, Quebec, railroad station. It is east of the highway, about 100 feet south of a cultivated field, and about 150 feet north of a heavy growth of hardwood.

Station mark: Standard bronze disk set in a hole drilled in outcropping bedrock.

**Hill** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township,  $3\frac{1}{2}$  miles north of Beecher Falls, Vt., on the upper edge of the hill pasture of the first farm on the road from the Van Dyke farm across the divide to Indian Stream Valley. It is near the top of the hill, about 1,100 feet southeast of the farm buildings and the road and about 130 feet from the edge of the woods.

Station mark: No mark was set at the station. The reference mark is a standard bronze disk set in a large outcrop of ledge rock, 41.79 feet from the station. The azimuth from the reference mark to station "Fall" is  $130^{\circ} 15'$  and to station "Hill" is  $265^{\circ} 02'$ .

**Wheeler** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about one-half mile northeast of the village of East Hereford, Quebec. It is on the second of the large knolls north of the buildings on the Wheeler farm and is about 1,200 feet from the road.

Station mark: Standard bronze disk set in a small outcrop of ledge rock.

**Lambert** (Quebec, Compton County; Jesse Hill, 1916).—In Hereford Township, on a high hardwood ridge about 3 miles north of Beecher Falls, Vt., about 1 mile west of Halls Stream, and opposite Mr. Lambert's farmhouse. The station is about 75 feet east of the highest point of the peak.

Station mark: A bronze disk cemented in a drill hole in a flat rock, which is buried 1 foot underground on a little knoll rising about 1 foot above the general level.

**Beecher Tablet** (Vermont, Essex County; Jesse Hill, 1916; J. D. Craig, 1917).—In Canaan Township, on the west shoulder of the high hill about  $1\frac{1}{4}$  miles east-northeast of Beecher Falls, Vt. The station is about 125 feet west of the highest point of the hill.

Station mark: A bronze disk cemented in a drill hole in a buried rock.

Beecher, the first station established in this locality, was not permanently marked. It was 5.13 feet distant, in azimuth  $108^{\circ} 23'$ , from Beecher Tablet.

#### LAKE POHENAGAMOOK TO VERMONT-QUEBEC BOUNDARY, POINTS SUPPLEMENTARY TO MAJOR SCHEME

**Bear** (Maine, Franklin County; Jesse Hill, 1915).—In township 8, range 2, 1 mile west of Lowelltown, Me., on the low rocky ridge north of Van Dyke Mountain, about one-fourth mile south of the Canadian Pacific Railway, about 600 feet north of a ridge about 150 feet higher. The station is on the west side of the top of the ridge.

• Station mark: A bronze disk cemented in a drill hole in rock.

**Saddle** (Maine, Franklin County; Jesse Hill, 1915).—In township 6, range 2, on the northeast end of the high ridge of Pisgah Mountain, about  $2\frac{1}{2}$  miles northeast of Chain of Ponds; at the head of Spider River Valley. The station is on the highest point on bare rock.

Station mark: A bronze disk cemented in a drill hole in rock. Monument 417 is 63.81 feet distant, in azimuth  $222^{\circ} 29'$ , from the station.

**South** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 2, on a small peak on the south shoulder of Merrill Mountain, about one-third mile southeast of "Merrill" triangulation station and  $1\frac{1}{4}$  miles south of Van Dyke Mountain. The station is on the highest point of the peak.

Station mark: A bronze disk cemented in a drill hole in a 60-pound rock which is buried in small rocks.

**Brown** (Maine, Franklin County; Jesse Hill, 1915).—In township 7, range 2, on the southerly end of the high boundary ridge, about 1,000 feet south-southwest of monument 414. The station is on the highest point, about 70 feet east of the boundary.

Station mark: A bronze disk cemented in a drill hole in rock. Monument 414-4 is 72.18 feet distant, in azimuth  $119^{\circ} 01'$ , from the station.

**Rain** (Maine, Franklin County; Jesse Hill, 1915).—In township 6, range 1, about 2 miles west-southwest of Kibby Mountain and  $1\frac{3}{4}$  miles east of monument 414, on a long ridge about midway between a saddle and a peak. The station is located on the northerly one of two small peaks.

Station mark: A bronze disk cemented in a drill hole in solid rock ledge.

**Back** (Quebec, Frontenac County; Jesse Hill, 1915).—In Louise Township, on a small peak on the north shoulder of Pisgah Mountain. The station is on the highest point of the peak.

Station mark: A bronze disk cemented in a drill hole in rock. Monument 418 is 74.3 feet distant, in azimuth  $97^{\circ} 26'$ , from the station.

**Joseph** (Quebec, Frontenac County; Jesse Hill, 1915).—In Louise Township,  $1\frac{1}{4}$  miles northeast of Pisgah Mountain. The station is on the summit of the ridge, about 15 feet south of the boundary.

Station mark: A bronze disk cemented in a drill hole in solid rock. Monument 414–28 is about 25 feet in a northwest direction from the station.

**Moran** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, 6 miles south of Woburn, Quebec, on the east peak of Gosford Mountain Range, on which are the sources of Morin Brook and Clearwater Brook. The station is about 1,000 feet west of monument 443, on the top of the flat summit of the peak.

Station mark: A bronze disk cemented in a drill hole in a rock.

**Mine** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, about 3 miles southeast of Woburn, Quebec,  $1\frac{1}{2}$  miles east-southeast of the junction of Morin Brook with Arnold River, three-fourths mile west-northwest of monument 435, on the easterly point of a mountain which is separated from the boundary ridge by a low saddle. The station is on a small pointed boulder, just west of which is a large boulder.

Station mark: A bronze disk cemented in a drill hole in the boulder.

**Dead** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the west and second highest peak of the hill, about 400 feet southeast of monument 433. The station is on the south end of a flat rock.

Station mark: A bronze disk cemented in a drill hole in rock.

**Arnold** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township about  $1\frac{1}{2}$  miles southeast of Woburn, Quebec,  $1\frac{1}{2}$  miles west of monument 431, and one-half mile south of the road. The station is on the highest point of a bare rocky hill on the highest point of a 20-foot rounded rock.

Station mark: A bronze disk cemented in a drill hole in rock.

**Seymour** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, near the highest point on the south side of a burnt rocky peak which is the second one north from Gosford Mountain, also the second one south from Arnold River, and three-fourths mile west of Morin Brook.

Station mark: A bronze disk cemented in a drill hole in rock.

**Steep** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the boundary ridge. The station is west of monument 437, and very close to the boundary.

Station mark: A bronze disk cemented in a drill hole in rock outcropping. Monument 437 is 86.90 feet distant, in azimuth  $249^{\circ} 36'$ , from the station.

**Boots** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the highest peak on the southerly ridge of Gosford Mountain, distant about 1 mile from its summit and  $1\frac{1}{2}$  miles east of Arnold River. The station is near the west edge and about 150 feet north of the south edge of the flat top of the peak.

Station mark: A bronze disk cemented in a drill hole in a rock.

**Dutch** (Maine, Franklin County; Jesse Hill, 1916).—In township 3, range 5,  $2\frac{3}{4}$  miles south-southeast of Gosford Mountain. The station is on the highest point of the peak, on the boundary between monuments 445 and 446, and 600 feet southwest of the former.

Station mark: A bronze disk cemented in a drill hole in rock. Monument 445–3 is 11.48 feet distant, in azimuth  $110^{\circ} 44'$ , from the station.

**Boggy** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the high boundary hill about three-fourths mile west of Arnold Bog. The station is on the highest point of the southeast peak, about 600 feet north-northwest of monument 455.

Station mark: A bronze disk cemented in a drill hole in a rock. Monument 455–5 is 62.99 feet distant, in azimuth  $133^{\circ} 03'$ , from the station.

**Suptic** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 5, on a peak one-half mile east-by-north from Cupsuptic Pond and three-fourths mile southeast of monument 452, which is near the head of Arnold Bog. The station is on the highest point of the hill.

Station mark: A bronze disk cemented in a drill hole in a rock.

**Dennison** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 5, on the boundary ridge, 2 miles east of Arnold Bog,  $3\frac{1}{4}$  miles south-southeast of Gosford Mountain. The station is about 750 feet south-east of monument 447, on the highest point of a small peak.

Station mark: A bronze disk cemented in a drill hole in a rock. Monument 447-2 is 20.34 feet distant, in azimuth  $149^{\circ} 09'$ , from the station.

**Smith** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 6, on the high boundary hill,  $2\frac{1}{4}$  miles northwest of Arnold Bog and one-half mile west of Arnold River and about midway between monuments 460 and 461. The station is on the highest point of the hill about 70 feet northwest of the boundary.

Station mark: A bronze disk cemented in a drill hole in a rock. Monument 460-10 is 150.81 feet distant, in azimuth  $21^{\circ} 57'$ , from the station.

**Boulder** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the more southerly of two hills about three-fourths mile east of Arnold Bog, 1 mile north-northeast of monument 452. The station is on the highest point of the hill.

Station mark: A bronze disk cemented in a drill hole in a rock.

**Louis** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on the south range of Gosford Mountain, just west of "Boots" triangulation station. The station is at the point where the hill breaks from a gentle slope to a steeper slope toward the Arnold River.

Station mark: A hole cut in the top of a balsam stump into which the signal pole was set.

**McLeod** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, on a small peak on the end of a spur running southwest-by-west from the summit of Gosford Mountain, distant  $1\frac{1}{4}$  miles, and three-fourths mile east of Arnold River. The station is on the highest point of the east peak.

Station mark: A bronze disk cemented in a drill hole in a rock.

**Jule** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township, about one-fourth mile west of the summit of Gosford Mountain. The station is located near the highest point of a small peak.

Station mark: No permanent mark. Signal was a flag on a trimmed fir tree.

**Nicollet** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 6, on the more easterly of the two peaks of Mount Nicollet, a mountain that is very steep on its east side,  $1\frac{3}{4}$  miles southeast of Marble Mountain, and  $1\frac{1}{4}$  miles east of monument 472. The station is on the highest point of the peak near the center of the top.

Station mark: A bronze disk cemented in a boulder which was set in the earth.

**Bowman** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 6, on a low peak about 2 miles south of monument 474 and west of the Magalloway road. The station is on the highest point of the peak.

Station mark: A bronze disk cemented in a drill hole in a rock.

**Barker** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 6, about one-fourth mile south of the boundary, one-half mile east of the Magalloway Road, 1 mile west of Barker Pond, and about 1 mile east-southeast of monument 474. The station is on the highest point of the hill.

Station mark: A bronze disk cemented in a drill hole in outcropping rock.

**Lake** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 6, on a low ridge three-fourths mile south of Barker Pond and north of the Magalloway Road. The station is on the highest point of the ridge.

Station mark: A bronze disk cemented in a drill hole in a rock.

**Marble** (Quebec, Frontenac County; Jesse Hill, 1916).—In Chesham Township, on Marble Mountain, about 5 miles southeast of Chesham, Quebec, and 1 mile south of monument 470, which is on Saddle Hill. The station is on the highest point of the peak, about 20 feet north of its south edge on outcropping rock and about 250 feet southwest of the boundary.

Station mark: A bronze disk cemented in a drill hole in rock.

**Landon** (Quebec, Frontenac County; Jesse Hill, 1916).—In Woburn Township about one-fourth mile southeast-by-east of monument 465, on the north slope of the ridge. The station is about 40 feet east of the boundary.

Station mark: A block of wood nailed to the exposed roots of a tree with a signal at its top.

**Fish** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 6, on the southeast peak of Saddle Hill, about 4 miles southeast of Chesham, Quebec, one-half mile southeast of monument 470. The station is near the southeast edge of the flat top of the peak.

Station mark: A bronze disk cemented in a drill hole in the rock. Monument 469-12 is 8.68 feet distant, in azimuth  $276^{\circ} 39'$ , from the station.



**Hugh** (Maine, Oxford County; Jesse Hill, 1916).—In township 4, range 6, one-fourth mile southwest-by-west of Mount Nicollet, 1 mile east-by-south of monument 472. The station is on the highest point of a small peak.

Station mark: A short hub driven in the ground.

**Campbell** (Quebec, Frontenac County; Jesse Hill, 1916).—In Chesham Township, on the northeast slope of Bon Durban Mountain, about three-fourths mile from its top, about 1,400 feet west of monument 476. The station is on the east side of the ridge.

Station mark: Cross cut on small soapstone ledge.

**Trumbull** (Quebec, Frontenac County; Jesse Hill, 1916).—In Chesham Township, on the high mountain peak on the boundary between monuments 477 and 478,  $5\frac{1}{4}$  miles east-southeast of Chartierville, Quebec. The station is on the highest part of the peak.

Station mark: A bronze disk cemented in a drill hole in a flat rock placed for the purpose. Monument 477-33 is 23.90 feet distant, in azimuth  $188^{\circ} 43'$ , from the station.

**Peterie** (Quebec, Compton County; F. H. Brundage, 1916).—In Emberton Township, about 300 feet north of the east-and-west road which runs parallel to and 3 miles south of the east-and-west road through Chartierville, Quebec. It is on the ridge which forms the divide between the two branches of Salmon Creek.

Station mark: Standard bronze disk set in a large rock.

**Southeast Knoll** (Quebec, Compton County; F. H. Brundage, 1916).—In Emberton Township, about 1 mile south of Chartierville, Quebec, one-half mile east of the road leading south from Chartierville to Lake Sophy (Third Lake). It is on a high rock in the pasture belonging to Fred Boudreau, about 60 feet from his east-and-west fence.

Station mark: Standard bronze disk set in the rock.

**Birches** (Quebec, Compton County; F. H. Brundage, 1916).—In Emberton Township, about 3 miles south and  $3\frac{1}{2}$  miles east of Chartierville, Quebec, on the same ridge on which triangulation station "Peterie" and monument 481 are located. It is about 900 feet north of the boundary, on the eastern edge of the ridge.

Station mark: Standard bronze disk set in solid rock.

**Nash** (Quebec, Frontenac County; Jesse Hill, 1916).—In Chesham Township, on the southwest slope of Trumbull Mountain, about 600 feet north of monument 478. The station is about 200 feet northwest of monument 477-48.

Station mark: A wooden hub, with a hole bored in its center, driven flush with the ground.

**Deer** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, about 6 miles south of Chartierville, Quebec. The observation tower used by the fire warden, whose cabin is located near by on Deer Mountain, was used as an observing tower.

Station mark: Standard bronze disk set in rock.

**Fourth** (Quebec, Compton County; F. H. Brundage, 1916).—In Auckland Township, on the summit of of the boundary ridge, on the Quebec side of the boundary.

Station mark: Standard bronze disk set in concrete-filled tile. The reference mark is monument 492-7, which is north  $10^{\circ}$  east (magnetic) of the station and distant 29.8 feet.

**Nob** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, about 1 mile south of monument 488. The station is on the extreme north edge of the summit of a knoll which rises abruptly from the lowland extending to the northeast, north, and southeast of the station.

Station mark: Standard bronze disk set in a concrete-filled tile. The reference mark is a spike in a birch stump which bears south  $57^{\circ}$  west (magnetic) from the station and is 10.4 feet distant.

**Hollis** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, about 255 feet south of monument 498, on the highest ground on the low ridge.

Station mark: Standard bronze disk. The reference mark consists of three nails in a blaze 3 feet above ground on a silver birch whose true bearing from the station is north  $27^{\circ}$  east and distance 20.17 feet.

**Ridge** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, on the summit of a ridge about one-half mile west of Indian Stream and parallel to it, and 1 mile southeast of monument 499. The station is on the southwest end of a knoll 200 feet long and 50 feet wide.

Station mark: Standard bronze disk set in a 4-inch tile filled with concrete. The tile projects 6 inches above ground and is surrounded by a small cairn.

**Near** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, on a ridge parallel to that part of the boundary which runs west from monument 500. It is about 200 feet south of the tote road to monument 500 and about 250 feet in elevation above the valley at monument 500.

Station mark: Standard bronze disk set in rock.

**Alec** (New Hampshire, Coos County; F. H. Brundage, 1916).—In Pittsburg Township, 200 feet south of the line between monuments 498 and 499, and about halfway between these monuments.

Station mark: A nail in a notch on the root of the tree in which the flag was raised.

**King** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $1\frac{1}{2}$  miles south of Malvina, Quebec, railroad station. It is about 175 feet west of the west side of the Maine Central Railroad right of way and about 600 feet south of where the Maine Central Railroad crosses King Brook.

Station mark: Standard bronze disk cemented in a flat bare rock.

#### HALLS STREAM, MINOR SCHEME

**Reference Monument 512-6** (Quebec, Compton County; J. E. McGrath, 1914-15).—In Hereford Township, about five-eighths mile north of Beecher Falls, Vt. It is about 180 feet north of the Canadian customs office, about 50 feet east of the middle of the highway, and about 75 feet west of the Maine Central Railroad.

Station mark: Standard bronze disk set in a  $2\frac{1}{2}$ -foot concrete post. The subsurface mark is a beer bottle filled with sand, buried beneath the concrete post.

**Tank** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, in Sylvester Hibbard's open pasture west of the main road on the Quebec side of the stream. It is about 175 feet north of the boundary and about 210 feet from the reservoir which supplies Beecher Falls with water.

Station mark: The surface mark is a standard bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a small glass bottle set about  $3\frac{1}{4}$  feet below the surface of the ground.

**Lot** (Vermont, Essex County; J. E. McGrath, 1914).—In Canaan Township, on the east side of Halls Stream, on a small knoll about 120 feet from Halls Stream and about 175 feet south of the international boundary produced across the stream.

Station mark: A standard bronze disk set flush with the surface of the ground in the top of a 3-foot concrete post. The subsurface mark is a gin bottle buried  $3\frac{1}{4}$  feet below the surface of the ground.

**Chaloux** (New Hampshire, Coos County; J. E. McGrath, 1914-15).—In Pittsburg Township, on the land belonging to George Chaloux and about 300 feet south of his house. It is a narrow point of rock which shows a precipitous face (about 25 feet high) toward the public road.

Station mark: The point occupied with theodolite and at which the signal was set was not marked. The reference mark is a standard bronze disk set in a hole drilled in the rock about 3 feet north of the center of the bare rocky surface of the point and about 15 feet east of where the precipitous descent of the west face of the point begins. From the reference mark to station "Chaloux" the azimuth is  $213^{\circ} 45'$  and the distance is 2.77 feet. The azimuth from the reference mark to station "Rock" is  $153^{\circ} 23'$ .

**Rock** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 1 mile north of Beecher Falls, Vt. It is between the main highway and the railroad, on top of a prominent ledge which rises 20 feet above the road.

Station mark: A standard bronze disk set in a hole drilled in the ledge.

**Beecher Falls South Base** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about 1 mile north of Beecher Falls, Vt. It is on the hillside at the top of the steep slope about 350 feet east of the highway. It is directly opposite a small knoll which is about 500 feet west of the highway.

Station mark: The surface mark is a standard bronze disk set in a  $2\frac{1}{2}$ -foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a cross chiseled in ledge rock. Two inches of earth separate the ledge from the concrete.

**Beecher Falls North Base** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about one-half mile southeast of the first highway bridge, north of Beecher Falls, which crosses Halls Stream. It is on the hillside about 600 feet east of the highway and about 50 feet south of the southern boundary of the Van Dyke farm.

Station mark: The surface mark is a standard bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a small bottle buried below the concrete.

**Van** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, 1 mile north of Beecher Falls, Vt. It is on the railroad right of way, 2 feet west of the fence separating the Van Dyke farm from the railroad, and is opposite the sixth rail joint (of west line of rails) counting northward from milepost P-156.

Station mark: No mark was set at the station. The reference mark, 7.95 feet distant, is a standard bronze disk set in a 2-foot concrete post whose top is flush with the surface of the ground. A glass bottle was buried 3 feet below the bronze disk, as a subsurface mark. The azimuth from the reference mark to station "Van" is  $10^{\circ} 05'$ . The azimuth from the reference mark to station "Pasture" is  $243^{\circ} 50'$ .

**Pasture** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, on the hillside east of Halls Stream about one-fourth mile northeast of the first bridge above Beecher Falls. It is due east of the old cemetery on the Canadian side and is about 300 feet above the foot of the slope.

Station mark: The surface mark is a standard bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a railroad spike driven in the shattered ledge.

**Reference Monument 512-4** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 2 miles north of Beecher Falls, Vt. It is on the west side of the Maine Central right of way, about 3 feet inside of the railway fence, about 100 feet south of a farm road crossing the railroad, and about 900 feet south of the Van Dyke farm buildings.

Station mark: A bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a pint flask filled with sand, buried beneath the concrete post.

**Advent** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 2½ miles north of Beecher Falls, Vt., and about 600 feet west of the main highway. It is opposite a small chapel and cemetery, and is about 100 feet in elevation above the road. A farm road leads to the station from the field below.

Station mark: The surface mark is a standard bronze disk set in a 3-foot concrete post whose top surface is flush with the surface of the ground. The subsurface mark is a catsup bottle buried below the concrete.

**Shift** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 1 mile south of East Hereford railway station. It is about 850 feet west of the Maine Central Railroad and about 900 feet south of the road leading from Halls Stream Valley to Hereford Hill. It is on the summit of the first small ridge west of the flat land of Halls Stream Valley and is about 300 feet west of a small brook.

Station mark: The surface mark is a standard bronze disk set in a 3-foot concrete post whose top surface is flush with the ground. The subsurface mark is a railroad spike driven in a crack in the ledge.

**Cherry** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, on the Bryan farm, directly across the river and due east from Thos. Lambart's farmhouse. It is on the top of the knoll nearest the middle of the big bend in Halls Stream.

Station mark: A standard bronze disk set in a large outcrop of rock.

**Fall** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 1,200 feet southwest of East Hereford railway station. It is on the eastern side of a knoll, a little below the top, about 350 feet west of the highway, and about 100 feet south of a fence.

Station mark: The surface mark is a standard bronze disk set in a 2-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a cross cut in ledge rock.

**Gendreau** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, between the Maine Central Railroad and the road nearest Halls Stream of the two roads between East Hereford and Paquetteville. It is on the point of the easternmost of two large ledges in the pasture of Gendreau's farm, about 500 feet east of his farm buildings and 1,100 feet east of the road.

Station mark: No mark was set at the station. The reference mark is a standard bronze disk set in outcropping bedrock at a distance of 8.39 feet from the station. The azimuth from the reference mark to station "Caron" is 318° 59', and from the reference mark to station "Gendreau" is 148° 30'.

**Cone** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, 1 mile due east of the village of East Hereford, Quebec. It is on a smooth conical-shaped hill about 600 feet northeast of the farm buildings on the Beloir farm.

Station mark: Standard bronze disk set in a 2½-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a bottle filled with gravel and buried below the concrete.

**Caron** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, on a flat ridge or bench in the pasture of the old Caron farm and about 700 feet northeast of the farm buildings.

Station mark: The surface mark is a standard bronze disk set in a 2½-foot concrete post whose surface is flush with the ground. The subsurface mark is a glass bottle filled with sand.

**Cedar** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 1 mile south of Paquetteville, Quebec, railroad station and about 700 feet west of the Maine Central Railroad. It is on the west edge of the top of a steep, wooded knoll.

Station mark: No mark was set at the station. The reference mark is a standard bronze disk set in outcropping bedrock, 7.90 feet distant. The azimuth from the reference mark to station "Caron" is 354° 27' and to station "Cedar" is 1° 06'.

**Ledge** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, three-fourths mile south of the Paquetteville, Quebec, railroad station and 900 feet west of the railroad. It is on a high exposed ledge of the group of outcrops in the pasture north of the Gendreau farm. Map No. 10, prepared by the International Boundary Commission, showing part of Halls Stream, should be used in recovering this station.

Station mark: Standard bronze disk set in the ledge.



**Poplar** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about five-eighths mile south of Paquetteville, Quebec, railroad station and one-fourth mile west of the railroad. It is about 50 feet north of the line fence along the north side of the first farm north of the Gendreau farm. The ridge on which this outcrop occurs is covered with a thicket of small poplar and raspberry bushes. A farm road leads from the railroad north and then west of this ridge, thence on to the highway to Paquetteville village. Map No. 10, prepared by the International Boundary Commission, showing part of Halls Stream, should be used in recovering this station.

Station mark: A standard bronze disk set in the top of the highest outcrop of the ledge.

**Paquette** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, on an open piece of ground, 530 feet from the northwest corner of Paquetteville railroad station, 210 feet south of an old fence which continues along the east side of the road that runs from the railroad station to the village, 215 feet from the center of the highway, and 160 feet from the railroad.

Station mark: The surface mark is a standard bronze disk set in an 18-inch concrete post whose top is flush with the surface of the ground. The subsurface mark is a marmalade jar buried 3 feet below the surface of the ground.

**Stump** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, on the highest point of a bare ledge at the north end of a knoll about 200 feet south of the Paquetteville, Quebec, railroad station and about 240 feet west of the railroad.

Station mark: Standard bronze disk set in a hole drilled in the ledge.

**N** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about one-half mile north-east of Paquetteville, Quebec, railroad station, on land belonging to Joseph Brule, about 135 feet west of the railroad and almost abreast of the northern end of the second long railroad curve north of Paquetteville. It is near the edge of a high, steep, wooded bank.

Station mark: The surface mark is a standard bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a beer bottle filled with sand and buried below the concrete post.

**Brush** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about three-fourths mile northeast of Paquetteville, Quebec, railroad station in a thicket on the property of Jos. Brule. It is about 800 feet northwest of the Maine Central Railroad and 150 feet south of an old farm road. Map No. 11, prepared by the International Boundary Commission, showing part of Halls Stream, should be used in recovering this station.

Station mark: The surface mark is a standard bronze disk set in an 18-inch concrete post whose top is flush with the surface of the ground. The subsurface mark is a liniment bottle filled with sand and buried 2½ feet below the surface of the ground.

**Thicket** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 1 mile north of Paquetteville, Quebec, railroad station and one-fourth mile west of the railroad, on a high knoll in a pasture that belongs to Mme. Paquette. Map No. 11, prepared by the International Boundary Commission, showing part of Halls Stream, should be used in recovering this station.

Station mark: The surface mark is a standard bronze disk set in a 2½-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a Paschall fruit-tablet bottle filled with sand and buried 3 feet below the surface of the ground.

**Duran** (Quebec, Compton County; J. E. McGrath, 1914–15).—In Hereford Township, about 2½ miles north of Paquetteville, Quebec, railroad station. It is about 1,100 feet southeast of the more northerly of the Maine Central Railroad bridges and about 800 feet west of the railroad. It is on the southern slope of a hill, about 100 feet above Halls Stream and 45 feet north of a line fence between farms. The station is on the eastern-most line of rock outcrops, the second one north of the point of the hill.

Station mark: Standard bronze disk set in a hole drilled in the ledge.

**Bird** (New Hampshire, Coos County; J. E. McGrath, 1914–15).—In Pittsburg Township, about 2½ miles north of Paquetteville, Quebec, railroad station, and about 380 feet east of the more northerly of the two Maine Central Railroad bridges. It is on the north edge of a small cleared area, and about 200 feet east of Halls Stream.

Station mark: Standard bronze disk set in a concrete-filled tile.

**Reference Monument 511-4** (New Hampshire, Coos County; J. E. McGrath, 1914–15).—In Pittsburg Township, about 3 miles northeast of the Paquetteville, Quebec, railroad station, and about 1,000 feet north of the steel railroad bridge. It is on the edge of a 10-foot bank running, from near the river, back in a northeasterly direction away from the river. About 40 feet from the monument and at the foot of the bank is a large rock about 10 feet high and 20 feet on a side, triangular in shape. The monument is 138 feet due east of the water's edge.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

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**Cut** (New Hampshire, Coos County; J. E. McGrath, 1914-15).—In Pittsburg Township, about  $2\frac{1}{4}$  miles north of Paquetteville, Quebec, railroad station. It is about 900 feet south of the more northerly of the two railroad bridges and about 55 feet east of the railroad.

Station mark: Standard bronze disk set in a 2-foot concrete-filled drain tile. The subsurface mark is a cross cut in the ledge under the tile.

**Reference Monument 511-3** (Quebec, Compton County; J. E. McGrath, 1915).—In Hereford Township, about 2 miles south of Malvina, Quebec, railroad station. The monument is on high ground, about 190 feet east of the railroad and about 800 feet upstream from an old dam and trestle. Map No. 11, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 511-2** (Quebec, Compton County; J. E. McGrath, 1915).—In Hereford Township, about 2 miles south of Malvina, Quebec, railroad station. The monument is about 280 feet east of the railroad, on the river side of a knoll which is surrounded by water during the flood season. Upstream from the monument is a sharp bend in the stream and then a comparatively straight channel for 800 feet. Map No. 11, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 511-1** (Quebec, Compton County; J. E. McGrath, 1915).—In Hereford Township, about  $1\frac{3}{4}$  miles south of the Malvina, Quebec, railroad station. The monument is about 420 feet east of the railroad and about 130 feet west of the first bend in the stream extending toward the railroad near the upstream end of a long, comparatively straight stretch of river. Map No. 12, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Culvert** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $1\frac{1}{2}$  miles south of Malvina, Quebec, railroad station and 12 feet east of the east fence of the right of way of the Maine Central Railroad. A small shallow ravine, about 4 feet deep and 20 feet wide, is about 10 feet north of the station and runs from the railroad to Halls Stream.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel buried 3 inches below the tile.

**Reference Monument 510-26** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $1\frac{1}{4}$  miles southeast of Malvina, Quebec, railroad station, about 1,500 feet east of the railroad, about 1,900 feet southeast of the farm buildings which are at the end of the road from Malvina, and about 160 feet from the west bank of Halls Stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Robert's West Base** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile south-southeast of Malvina, Quebec, railroad station and about 800 feet east of the Maine Central Railroad. It is in a stumpy pasture about 1,100 feet southeast of the farm buildings which are at the end of the road from Malvina.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 2 inches below the tile.

**Reference Monument 510-27** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $1\frac{3}{8}$  miles southeast of Malvina, Quebec, railroad station. The monument is in an alder swamp about 40 feet east of Halls Stream, about 1,000 feet upstream from the mouth of King Brook, and about 1,000 feet east of the railroad. It is about 50 feet south of a swampy tributary from the New Hampshire side. Map No. 12, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in concrete.

**Reference Monument 510-25** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $1\frac{1}{8}$  miles southeast of Malvina, Quebec, railroad station, across the stream from the upstream end of the big flat on the Canadian side, and about 550 feet from the east bank of Halls Stream. It is in the southwest corner of an abandoned pasture, 150 feet east of the right of way of the abandoned Mink Valley Railroad, and about 100 feet from an old road leading from a bridge across Halls Stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-24** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile southeast of Malvina, Quebec, railroad station. The monument is about 300 feet west of Halls Stream on a hillside which is covered with raspberry bushes, with a few small spruce, cherry, and maple,

and several large birch. The station is about 150 feet east of the logging road from the farm on the flat south of the monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-23** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile east-southeast of Malvina, Quebec, railroad station. The monument is about 300 feet west of Halls Stream, in a thicket of small spruce and fir with a few large birch, and about 50 feet west of the woods road leading from the farm on the flat up the river to the old field back of Mose King's farm. Map No. 12, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-22** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile east of Malvina, Quebec, railroad station. The monument is on a hillside sloping east, covered with raspberry bushes and a few large birch and small fir. It is about 75 feet west of the logging road which parallels the stream from the farm on the flat north to Mose King's field. It is about 300 feet west of Halls Stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-21** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile east of Malvina, Quebec, railroad station. It is about 700 feet south of the road over the hill from Mose King's farm to Halls Stream, measured from where the road enters a small field. It is about 280 feet west of the mouth of the large brook which flows into Halls Stream from the Canadian side. It is about 75 feet east of the logging road leading from the farm on the flat upriver to Mose King's field.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-20** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile east of Malvina, Quebec, railroad station, in the northwest corner of an old field on the side of the hill west of a large brook flowing into Halls Stream from the northwest. The monument is about 500 feet west of this brook and about 150 feet north of the road from Mose King's farm which crosses the south side of this small field.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-19** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $1\frac{1}{4}$  miles east-northeast of Malvina, Quebec, railroad station. The monument is on the top of a knoll which slopes abruptly to the stream and gently to the westward. It is about 210 feet west of Halls Stream and about 360 feet northwest of the bridge across Halls Stream on the road from Mose King's farm.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-18** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $1\frac{1}{2}$  miles northeast of Malvina, Quebec, railroad station, and about one-fourth mile northeast of the bridge across Halls Stream on the road from Mose King's farm. It is about 145 feet east of Halls Stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-17** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $1\frac{5}{8}$  miles northeast of Malvina, Quebec, railroad station. The monument is on the east edge of an old logging road, and is about 160 feet north of a brook at the point where it crosses the road. It is about 600 feet east of Halls Stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-16** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $1\frac{3}{4}$  miles northeast of Malvina, Quebec, railroad station. The monument is about 290 feet southeast of Halls Stream measured parallel with the brook which passes 60 feet north of the monument. It is about 100 feet west of an old logging road and 5 feet southeast of a large yellow birch.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-15** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about 2 miles northeast of Malvina, Quebec, railroad station. The monument is about 20 feet west of the logging road which follows the stream on the United States side and about 45 feet from the bank of Halls Stream. It is about 130 feet downstream from the mouth of a small brook on the United States side. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-14** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $2\frac{1}{8}$  miles northeast of Malvina, Quebec, railroad station. The monument is about 50 feet east of the old logging road which runs close under the high point of land on which the monument is located.



This point of land extends into the alder swamp and is covered with large white birch and spruce. The monument is about 60 feet south of a small brook and about 65 feet southwest of the mouth of this brook.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-13** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $2\frac{1}{4}$  miles northeast of Malvina, Quebec, railroad station, about 30 feet east of the top of the high bank along the east side of Halls Stream. An old logging road runs along the foot of this bank and a strip of alders lies between the road and the river. It is about 90 feet east of Halls Stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-12** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $2\frac{1}{4}$  miles northeast of Malvina, Quebec, railroad station, about 60 feet east of Halls Stream and about 20 feet east of western edge of a spruce and fir thicket. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this station.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-11** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $2\frac{1}{2}$  miles northeast of Malvina, Quebec, railroad station and about 200 feet east of Halls Stream, in a mixed birch and spruce woods. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-10** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $2\frac{1}{2}$  miles northeast of Malvina, Quebec, railroad station, about 50 feet east of the old logging road, and about 75 feet east of Halls Stream. It is about 20 feet inside of the western edge of the timberland. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this station.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-9** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about  $2\frac{1}{2}$  miles northeast of Malvina, Quebec, railroad station, about 100 feet east of the confluence of Halls Stream and the North Fork. It is on the eastern side of the clearing around the old lumber camp at the forks of the stream, and is about 40 feet from the North Fork. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-8** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles northeast of Malvina, Quebec, railroad station. The monument is on the west side of Halls Stream near the edge of the low swampy ground and about 30 feet from the bank of the stream. It is about 1,000 feet northwest of the junction of the North Fork with Halls Stream and is about 650 feet north of a well-defined woods road leading from the settlement on the Canadian side to the forks of the stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-7** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north-northeast of Malvina, Quebec, railroad station, on the high bank south of Halls Stream. A woods road runs about 12 feet south of the monument, and about 18 feet southeast of the monument a small spring brook crosses the woods road and runs in a northeast direction. The monument is about 90 feet from Halls Stream.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-6** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north-northeast of Malvina, Quebec, railroad station, on top of the high bank on the south side of Halls Stream. A woods road runs about 100 feet south of the monument—the same road which runs past reference monument 510-7. The monument is about 75 feet from Halls Stream. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-5** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, in a heavy growth of hardwood near the top of the gradually sloping bank of the south side of Halls Stream. A shallow ravine runs just east of the monument and then in a northeast direction to the stream. The monument is about 250 feet from Halls Stream. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-4** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $2\frac{1}{2}$  miles north-northeast of Malvina, Quebec, railroad station. It is about 10 feet south of the top of the steep bank on the south side of Halls Stream. About 150 feet southeast of the monument there is a broad, shallow ravine and about 300 feet to the northwest is a deep gorge running down to the stream. A rough woods road runs about 100 feet south of the station. The monument is about 140 feet from Halls Stream. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Shade** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $2\frac{1}{2}$  miles north of Malvina, Quebec, railroad station, and about  $1\frac{1}{2}$  miles downstream from the head of Halls Stream. It is about midway between monuments 510-3 and 510-4 and is about 160 feet southwest of the stream. About 300 feet south of the station a deep gorge runs down to the stream.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel, buried 4 inches below the tile.

**Reference Monument 510-3** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $2\frac{1}{2}$  miles north of Malvina, Quebec, railroad station, on a flat ridge sloping gently to Halls Stream. It is in a heavy growth of hardwood, with a few spruce. It is about 170 feet from Halls Stream at its nearest point and about 65 feet north of a small brook which flows into Halls Stream. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-2** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $2\frac{3}{4}$  miles north of Malvina, Quebec, railroad station, in a heavy hardwood growth on land sloping gently toward Halls Stream. It is about 200 feet from the west bank of Halls Stream. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Reference Monument 510-1** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about  $2\frac{3}{4}$  miles north of Malvina, Quebec, railroad station, on slightly rolling land. To the north of the monument is heavy hardwood timber. To the south is burnt land covered with a dense spruce and fir thicket with a few dead birch stubs. The monument is about 100 feet from Halls Stream. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A manganese bronze post, 8 inches high, set in a concrete base.

**Shine** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north of Malvina, Quebec, railroad station, about 500 feet southwest of Halls Stream, and about 900 feet east of the north-and-south road that begins at Malvina railroad station. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, should be used in recovering this station.

Station mark: A bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 4 inches below the tile.

**Labor** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north of Malvina, Quebec, railroad station, about 600 feet southwest of Halls Stream, and about 400 feet east of the north-and-south road that begins at Malvina railroad station. Map No. 13, prepared by the International Boundary Commission, showing part of Halls Stream, should be used in recovering this station.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 4 inches below the tile.

**Berry** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 1 mile downstream from the head of Halls Stream and about 400 feet from the stream; about 700 feet downstream from the first brook on the south side of the stream. An old tote road crosses the stream at the mouth of the brook.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 4 inches below the bottom of the tile.

**Run** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about one-half mile downstream from the head of Halls Stream. It is in the alder swamp on the east side of Halls Stream and about 15 feet from the middle of the stream. It is 275 feet northwest of monument 509.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 4 inches below the bottom of the tile.

**Bog** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about 3 miles north of Malvina, Quebec, railroad station, about 1,800 feet downstream from the head of Halls Stream, and about 275 feet from the stream.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel buried 4 inches below the tile.

**Solid** (New Hampshire, Coos County; J. E. McGrath, 1915).—In Pittsburg Township, about 3 miles north of Malvina, Quebec, railroad station, about 1,100 feet downstream from the head of Halls Stream, and about 100 feet east of its east bank. It is on the southern end of a small flat ridge extending out into the alder swamp, about 10 feet above the swamp, and about 3 feet from where the ridge drops off to the level of the swamp.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 3 inches below the tile.

**Hub** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north of Malvina, Quebec, railroad station and about 600 feet downstream from the head of Halls Stream. It is on a high spruce knoll about 80 feet south of Halls Stream, on the southeastern side of the knoll, just at the edge of the rather flat top.

Station mark: Standard bronze disk set in a 2-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried in a hole in the ledge, 3 inches below the bottom of the tile.

**Still** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north of Malvina, Quebec, railroad station, in very swampy ground at the head of Halls Stream, and 52 feet west of monument 507.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 4 inches below the tile.

**Big** (Quebec, Compton County; J. E. McGrath, 1915).—In Auckland Township, about 3 miles north of Malvina, Quebec, railroad station, on the high land north of the head of Halls Stream and about 65 feet northwest of monument 505.

Station mark: Standard bronze disk set in a 3-foot concrete-filled drain tile. The subsurface mark is a bottle filled with gravel and buried 4 inches below the tile.

#### HALLS STREAM, POINTS SUPPLEMENTARY TO MINOR SCHEME

**Reference Monument 512-5** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 1 mile north of Beecher Falls, Vt., on the west bank of Halls Stream, in Frank Rowell's meadow, about 900 feet south of his house. It is about 100 feet south of the south end of a small pond, about 170 feet east of the Maine Central Railroad, and about 15 feet from the bank of the stream. It is distant 272 feet, in azimuth 229° 48', from station "Rock."

Station mark: Standard bronze disk set in a 3-foot concrete post. The subsurface mark is a beer bottle filled with sand buried beneath the concrete post.

**Reference Monument 512 3** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about 3 miles north of Beecher Falls, Vt. It is on the east bank of Halls Stream, about 15 feet above the northeast side of the bridge over Halls Stream, on the road leading from the Van Dyke farm to the Bryan farm. Directly south of the monument the water is but 1 foot distant. This ledge is about 7 feet above ordinary water level.

Station mark: A bronze disk set in a hole drilled in ledge rock.

**Reference Monument 512-2** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about 3 miles north of Beecher Falls, Vt. It is on the east bank of Halls Stream, in Thomas Lambart's pasture, about 10 feet west of the line fence between the Lambart and Bryan farms and about 110 feet north of the river bank, measured along this line fence.

Station mark: A bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a small bottle filled with sand buried beneath the concrete post.

**Reference Monument 512-1** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about 3½ miles north of Beecher Falls, Vt. It is on the east bank of Halls Stream, about 450 feet southwest of Jubal Wheeler's farm buildings on his lower farm. It is on the edge of a hayfield about 45 feet southwest of a small ravine that extends from the river bank back to the woods. It is about 6 feet from the edge of the high, steep bank.

Station mark: A bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a small bottle filled with sand buried beneath the concrete post.



**Reference Monument 512** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about 4 miles north of Beecher Falls, Vt. It is on the east side of Halls Stream, 3 feet south of the southeast wing wall of the east abutment of the highway bridge on the road leading from Fred Owen's farm, in Quebec, to Jubal Wheeler's farm.

Station mark: Cast-iron obelisk extending 3 feet above its concrete base.

**Reference Monument 511-16** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, on the east side of Halls Stream, one-half mile southeast of East Hereford, Quebec, about one-fourth mile north of Jubal Wheeler's farm buildings. It is about 300 feet upstream from the mouth of the West Branch of Halls Stream, which flows through East Hereford village, and about 75 feet from the bank of Halls Stream.

Station mark: A bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a beer bottle filled with sand buried beneath the concrete.

**Reference Monument 511-15** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about three-fourths mile east of East Hereford, Quebec. It is on the west bank of Halls Stream in the southeast corner of the wooded pasture of Chouinard's farm and about 85 feet upstream from the fence between the pasture and the hay and grain field. It is about 450 feet above the farm road leading from Chouinard's farm across the stream to Beloir's farm, and about 138 feet downstream from the mouth of the Middle Branch of Halls Stream.

Station mark: A bronze disk set in a hole drilled in ledge rock.

**Reference Monument 511-14** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about  $1\frac{1}{2}$  miles northeast of East Hereford, Quebec. It is on the east bank of Halls Stream, on the upper end of Beloir's meadow at the edge of a piece of swampy wooded land. It is about 180 feet north of the road from Beloir's to the Caron farm, and 30 feet from the bank of Halls Stream.

Station mark: A bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground. The subsurface mark is a small bottle filled with sand buried beneath the concrete post.

**Reference Monument 511-13** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about 2 miles northeast of East Hereford, Quebec. It is on the highest ground on the west bank of Halls Stream, directly opposite the buildings on the Caron farm, which are at the end of the road on the New Hampshire side. Mile post L. R. 47 of the Maine Central Railroad bears northwest from the monument. The monument is on the middle one of three ledges and is about 50 feet from the stream.

Station mark: A bronze disk set in a hole drilled in ledge rock.

**Reference Monument 511-12** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about  $2\frac{1}{2}$  miles northeast of East Hereford, Quebec. It is on the east side of Halls Stream. It is near the northeast corner of the level part of the old Caron farm. It is about 35 feet south of the top of a high, steep bank into which the stream is cutting.

Station mark: A bronze disk set in a 3-foot concrete post. The subsurface mark is a small bottle filled with sand, buried beneath the concrete post.

**Reference Monument 511-11** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township, about seven-eighths mile south of Paquetteville, Quebec, railroad station. It is on a boulder which is 15 feet long, 8 feet wide, and 4 feet high. The monument is about 55 feet from the railroad track and about 180 feet from Halls Stream.

Station mark: A bronze disk set in a hole drilled in the boulder.

**Reference Monument 511-10** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about one-half mile south of Paquetteville, Quebec, railroad station. It is on a large, nearly flat rock at the water's edge, on the east bank of Halls Stream. The surface of the rock is roughly  $5\frac{1}{2}$  feet long and  $2\frac{1}{2}$  feet wide. Map No. 10, prepared by the International Boundary Commission, showing part of Halls Stream, will be of assistance in recovering this monument.

Station mark: A bronze disk set in a hole drilled in the rock at its highest point.

**Reference Monument 511-9** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about 1,700 feet east of Paquetteville, Quebec, railroad station. At this point the level bank (on the New Hampshire shore) shows a flat stretch, about 15 feet above water level and about 20 feet wide; and at a point about 125 feet downstream this level area disappears in a high bank nearly 20 feet high which is washing away. The monument is on a boulder at the water's edge, whose dimensions are roughly 3 feet by 4 feet by  $2\frac{1}{2}$  feet.

Station mark: A bronze disk set in a hole drilled in the boulder.

**Reference Monument 511-8** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township,  $1\frac{1}{4}$  miles northeast of Paquetteville, Quebec, railroad station. It is at the top of the only steep, high, river bank (50 feet high) in this vicinity on the New Hampshire side of Halls Stream. The monument may be reached by crossing Halls Stream from the Paquetteville railroad station and following the road which leads to Moses St. Cyr's, on the New Hampshire side. The monument is about 600 feet southwest of St. Cyr's house and about 40 feet west of the road.

Station mark: A bronze disk set in a 3-foot concrete post whose top is flush with the surface of the ground.

**Reference Monument 511-7** (Quebec, Compton County; J. E. McGrath, 1914).—In Hereford Township,  $1\frac{1}{4}$  miles northeast of Paquetteville, Quebec, railroad station, in a black boulder on the river bank, the only one of its kind in this vicinity. It is about 2,300 feet south of the more southerly of the two railroad bridges crossing Halls Stream. The stream follows the railroad for about 800 feet, in this vicinity, keeping at an average distance of about 25 feet, and the monument is near the point where the stream turns away from the railroad. The monument is about 6 feet from the edge of the stream and about 18 feet from the center of the railroad.

Station mark: A bronze disk set in a hole drilled in the boulder.

**Reference Monument 511-6** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about 2 miles northeast of the Paquetteville, Quebec, railroad station. It is set in the coping stone of the northeast wing wall of the north abutment of the wooden railroad bridge crossing Halls Stream.

Station mark: A bronze disk set in a hole drilled in the top of the bridge abutment.

**Reference Monument 511-5** (New Hampshire, Coos County; J. E. McGrath, 1914).—In Pittsburg Township, about  $2\frac{1}{2}$  miles northeast of the Paquetteville, Quebec, railroad station. It is set in a granite block which forms the top of the southwest corner of the abutment of the steel bridge over Halls Stream. The distance from the monument to the southwest corner of the steel bridge is 9.28 feet; to the southeast corner of the bridge is 19.14 feet; and to the center line of the railroad is 8.76 feet.

Station mark: Standard bronze disk cemented in a hole drilled in the top of the bridge abutment.

#### VERMONT-QUEBEC AND NEW YORK-QUEBEC BOUNDARIES TO THE ST. LAWRENCE RIVER

**Stewart** (New Hampshire, Coos County; J. D. Craig, 1917).—In Stewartstown Township, on top of a rock bluff, an outcrop on the south end of the ridge on the east side of the Connecticut River, overlooking West Stewartstown, N. H.

Station mark: Bronze disk of the Geodetic Survey of Canada set in a crevice in the rock.

**Fino** (Quebec, Compton County; J. D. Craig, 1917).—In Hereford Township, on the bald southwest shoulder of a hill on the property of Mose Leandon, at a point where the hill breaks off abruptly to the south and west. To reach the station from Hereford, Quebec, post office, take the first turn at the church to the right across the creek, and go up the hill; turn to the left at a red barn and follow the road to the foot of the hill.

Station mark: Bronze disk of the Geodetic Survey of Canada set in rock flush with the surface of the ground.

**Searchme** (Vermont, Essex County; J. D. Craig, 1917).—In Canaan Township, on the highest point of Harrimans Hill, immediately southeast of Wallace Pond. To reach the station, take the road to the south at the east end of Wallace Pond. It is 20 minutes' walk from the end of the road to the summit of the hill, which is heavily timbered with hardwood.

Station mark: Copper bolt of the Geodetic Survey of Canada, set in rock flush with the surface of the ground.

**Brown** (Quebec, Stanstead County; J. D. Craig, 1917).—In Barford Township, on a bald shoulder on the southwest end of Spring Hill, on property of Mr. Chamberlain, of Dixville, Quebec. To reach the station, take the road east from Dixville, Quebec, to the foot of the hill, at which point the road turns abruptly north.

Station mark: Copper bolt set in solid rock.

**Averill** (Vermont, Essex County; J. D. Craig, 1917).—In Norton Township, on a partly cleared hill just west of Averill Lakes. The station is on a small rock outcrop on the highest point of the hill, in a clump of spruce and birch. To reach the station, go east from Norton Mills, Vt., take the second turn to the right, and climb from the end of the road. The hill is the property of the Connecticut Valley Lumber Co.

Station mark: Copper bolt set in solid rock.

**Pinnacle** (Quebec, Stanstead County; J. D. Craig, 1917).—In Barnston Township, on Barnston Pinnacle. To reach the station, follow the road south along the lake shore from Baldwins Mills. A trail leads up from the end of the road. The station is on the highest point of the hill overlooking the country to the south and west.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Duck** (Vermont, Orleans County; J. D. Craig, 1917).—In Holland Township, on the northerly slope of John Mountain, about 2 miles east of Holland Center. The station is at the lower edge of the timber which covers the summit of the hill.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Fairfax** (Quebec, Stanstead County; J. D. Craig, 1917).—In Stanstead Township, on the summit of a bald hill about 3 miles southwest of Ways Mills, Quebec. The hill is locally known as Fairfax Heights. The station is just west of H. Gould's farmhouse and north of the farmhouse of Wilfrid Senecal. A 30-foot tripod and scaffold were erected here.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Dufferin** (Quebec, Stanstead County; J. D. Craig, 1917).—In Stanstead Township, in an open field about 600 feet west of the flagpole on Dufferin Heights, which is approximately 5 miles north of Rock Island, Quebec.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Oats** (Quebec, Stanstead County; J. D. Craig, 1917).—In Stanstead Township, 1 mile west of Smiths Mills, Quebec. It is on a rock outcrop in the open field 750 feet northeast of J. S. Derick's barn.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Derrick** (Quebec, Stanstead County; J. D. Craig, 1917).—In Stanstead Township, in a hayfield about 1 mile west of Smiths Mills, Quebec, and 450 feet north of the barn on the farm of J. S. Derick.

Station mark: Nail in hub.

**East Lake** (Vermont, Orleans County; J. D. Craig, 1917).—In Derby Township, on the bald summit of Dowlings Hill, about 2 miles south of Beebe Plain, Vt.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock. An old drill hole near-by marks a station of unknown origin.

**Newport** (Vermont, Orleans County; J. D. Craig, 1917).—In Troy Township, on the northerly slope of a hill about 3 miles due east of Newport Center, Vt. It is in thick spruce timber and near its southerly limit. A 35-foot tripod and scaffold were erected at the station.

Station mark: No mark could be set at the station. Two reference bolts were set as follows: East bolt is 115.4 feet distant, in azimuth  $214^{\circ} 31'$ , from the station; west bolt is 134.5 feet distant, in azimuth  $77^{\circ} 13'$ , from the station.

**Owls Head** (Quebec, Brome County; Geodetic Survey of Canada, J. D. Craig, 1917).—In Potton Township, about 6 miles from the village of Mansonville, Quebec, on the highest point of the most northerly knob of the mountain known as Owls Head. Information and livery can be had from Wright Magoun, who lives at the base of the mountain. A path to the summit runs up the north side of the mountain from the Magoun farm.

Station mark: Copper bolt set in rock and stamped with the die of the Geodetic Survey of Canada, around which an equilateral triangle is cut in the rock. The reference marks are three copper bolts, each of which is set in the rock at the point of an arrow carved in the rock. They are located at the following azimuths and distances from the station: No. 1, azimuth  $8^{\circ} 21'$ , distance 20.8 feet; No. 2, azimuth  $199^{\circ} 06'$ , distance 17.1 feet; No. 3, azimuth  $267^{\circ} 08'$ , distance 49.65 feet.

**Jay** (Vermont, Franklin County; J. D. Craig, 1917).—In Jay Township, on the highest point of Jay Peak.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Round Top** (Quebec, Brome County; J. D. Craig, 1917).—In Sutton Township, on "Round Top"—a mountain about 3 miles north and east of Glen Sutton (Glenton), Quebec. The station is on the southeasterly side of the top of the hill. To reach the station, take the Fourth Concession road, which leaves the main road between Sutton and Glen Sutton, go east about 2 miles, pass Alex. Westover's house, turn north at the orchard, and follow the creek to the watershed; then go northeast to the station.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Doctor** (Vermont, Franklin County; J. D. Craig, 1917).—In Enosburg Township, on the summit of a bald hill about 4 miles south of East Berkshire, Vt. To reach the station, cross the river at East Berkshire, take the first turn to the right, then a sharp turn to the left  $2\frac{1}{2}$  miles from the village. Continue over the hill, down across the creek, and take the first turn to the right, then climb to the top of the hill.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**St. Armand** (Quebec, Missisquoi County; Geodetic Survey of Canada, 1910; J. D. Craig, 1917).—In St. Armand Seigneurie, on the top of a mountain called The Pinnacle. The station is most easily reached from the town of Richford, Vt., on the Newport and Boston branch of the Canadian Pacific Railway, by a drive of 4 miles to the farm of F. S. Clark, and thence by way of a path leading from the back of his farm to the top of the mountain. The top of the mountain is almost bare rock, with scattered small scrub. An unobstructed view can be had in all directions. To the north of the summit is a triangulation station used by the Militia Department, marked by a copper bolt with a cross on it. The summit of the hill is a flat rock, which was selected as the best location for the station.



Station mark: A copper bolt leaded in the rock. An equilateral triangle is cut around it; the bolt is stamped with the Canadian Geodetic Survey die; it is referenced by the triangulation mark of the Canadian Militia Department and by three arrows cut in the rock, with copper bolts at their points, situated as follows:

	Azimuth (from the south)		Distance
	°	'	<i>Feet</i>
Reference bolt.....	131	08	43. 5
Station of Militia Department.....	165	50	133. 23
Reference bolt.....	266	34	24. 3
Reference bolt.....	350	30	49. 6

Three concrete foot blocks for the tripod of the large observing instrument were built, also a lamp stand for the lightman; the directions of the principal points were marked on the top of the stand.

**Franklin** (Vermont, Grand Isle County; J. D. Craig, 1917).—In Franklin Township, on a bare hill on the property of ex-Governor Gates, of Vermont, about  $1\frac{1}{2}$  miles west of Franklin Pond.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**McDermott** (Quebec, Missisquoi County; J. D. Craig, 1917).—In St. Armand Seignury, about  $1\frac{1}{2}$  miles west of Frelighsburg, Quebec. It is on the southerly slope of the hill behind W. Pelletier's farmhouse.

Station mark: Bronze disk of the Geodetic Survey of Canada set in rock outcrop.

**Sheldon** (Vermont, Franklin County; J. D. Craig, 1917).—In Sheldon Township, about 1 mile south of Sheldon Springs, Vt., on the northerly shoulder of the hill immediately west of the county poorhouse. The station is on a rock outcrop just north of the most northerly trees on the summit of the ridge.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Saint** (Vermont, Grand Isle County; J. D. Craig, 1917).—In Alburg Township, on the bare hill east of Lamoreux Bros.' farm buildings, about 2 miles south of St. Armand, Quebec.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Blair** (Vermont, Grand Isle County; J. D. Craig, 1917).—In Alburg Township, about 1 mile north and west of East Alburg, Vt., on the summit of the ridge where it is crossed by the road. The station is about 5 feet south of the fence on the north side of the road and about 20 feet east of the gate in the fence.

Station mark: Bronze disk of the Geodetic Survey of Canada set in rock flush with the surface of the ground

**Alburg** (Vermont, Grand Isle County; J. D. Craig, 1917).—In Alburg Township, on a bare ridge about  $2\frac{1}{2}$  miles south and west of Alburg Center, Vt. To reach the station, go south from Alburg Center about 2 miles, west across the railway, and south one-fourth mile. The station is on a bare ridge west of the road, on the property of Edson L. Mitchell. A 30-foot tripod and scaffold were erected here.

Station mark: Bronze disk of the Geodetic Survey of Canada set in rock flush with the ground.

**Champlain** (New York, Clinton County; J. D. Craig, 1917).—In Champlain Township, about 2 miles south of Champlain, N. Y. To reach the station, take the road turning south at the bridge in the village. The station is in the northeast corner of a thick clump of cedars, and about 450 feet east of the road. It is on the property of P. Catelli, Champlain, N. Y.

Station mark: Bronze disk of the Geodetic Survey of Canada.

**Covey Hill** (Quebec, Huntingdon County; Geodetic Survey of Canada, 1908; J. D. Craig, 1917).—In Havelock Township, on Covey Hill, on lots 34C and 35C of range 1, the property of John Waddell, Franklin Center, Quebec.

Station mark: Iron bolt in solid rock. Two copper reference bolts are set in rock along the south fence of the main road about 350 feet from the station. These reference bolts and the northeast corner of lot 34C, range 1, are located as follows with reference to the station:

	Azimuth (from the south)			Distance
	°	'	"	<i>Feet</i>
Bolt No. 1.....	157	27	56	338. 5
Bolt No. 2.....	208	14	12	357. 93
Northeast corner of lot 34C.....	249	28	14	922. 9

Bolt No. 1 was not found in 1917, being covered with rock thrown in against the fence.

The distance, measured along the road fence from the above-mentioned northeast corner of the lot to bolt No. 2 is 694.98 feet, and from bolt No. 2 to bolt No. 1 is 298.45 feet.

**Huntingdon** (Quebec, Huntingdon County; Geodetic Survey of Canada, 1908; J. D. Craig, 1917).—In Godmanchester Township, on lot 77, range 4, on land owned by Angus Stark, who lives a short distance east of the station. The station may be reached from the railway station of Huntingdon, on the Grand Trunk and St. Lawrence & Adirondack Railways, by a drive of about  $5\frac{1}{2}$  miles.

Station mark: Underground and surface marks consisting of small spikes in the centers of concrete-filled vitrified-clay sewer tiles placed on end, the lower one 4.6 feet and the upper one 0.8 foot below the surface of the ground. The reference marks are as follows: Concrete monument, distant 131.51 feet, in azimuth  $68^{\circ} 52' 10''$ , from the station; northwest corner of lot 77, distant 3,166.80 feet, in azimuth  $138^{\circ} 16' 55''$  from the station. A 70-foot tripod and a scaffold were erected over the station.

**Bonville** (Ontario, Stormont County; Geodetic Survey of Canada, 1908; J. A. Pounder, 1923).—In Cornwall Township, on the east half of lot 15, Concession VIII, on the property of Arthur Beaudette.

Station mark: The subsurface mark is the point of a 6-inch spike placed head down in cement in a 4 by 24 inch tile set in cement. Immediately above this mark is a flat stone, and above this, a near-surface mark similar in construction to the subsurface mark placed 18 inches below the surface of the ground. The southwest corner of the east half of lot 15 is distant 1,080.4 feet, in azimuth  $358^{\circ} 20' 15''$ , from the station. A reference monument was placed close to the same lot corner at a distance of 1,070.8 feet in the same direction. A 70-foot tower was built at the station.

**Sup** (Quebec, Stanstead County; J. D. Craig, 1917).—In Barford Township, on the southerly slope of a sparsely timbered hill about 1 mile northwest of Stanhope, Quebec. The station is about three-fourths of the distance up the hill, near the cliffs on the east face.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Craig's Knoll** (Vermont, Essex County; J. D. Craig, 1917).—In Norton Township, on a grassy knoll about 1,400 feet south of the international boundary and about 350 feet east of the Grand Trunk Railroad.

Station mark: Copper bolt set in solid rock.

**Pond** (Quebec, Stanstead County; J. D. Craig, 1917).—In Barnston Township, on a rock outcrop on the southern isolated shoulder of the mountain immediately west of Lyster or Barnston Lake. The station is near the southeastern edge of the summit of the isolated shoulder, which is considerably lower than the main mountain. To reach the station, go south from Baldwins Mills along the west shore of the lake and climb the gulch between the mountain and the shoulder.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Stanstead Bench Mark** (Quebec, Stanstead County; J. D. Craig, 1917).—In Stanstead Township, in the east end of the north face of the capstone on the north end of the old stone culvert under the Boston & Maine Railroad, 45 feet east of the water tank at Stanstead, Quebec, railway station.

Station mark: Bench mark bolt of the Geodetic Survey of Canada, stamped "B. M. No. 34."

**Broo** (Quebec, Brome County; J. D. Craig, 1917).—In Potton Township, in a small opening in the timber on the southerly slope of the hill northwest of the farm of Fritz Broo, of Mansonville, Quebec, about three-fourths mile from his house.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Sicard** (Vermont, Orleans County; J. D. Craig, 1917).—In Troy Township, in a field, about 8 feet south of the fence along the south side of the lake. It is south of Mr. Sicard's house, which is about 3 miles due south-east of North Troy, Vt.

Station mark: Nail in hub. No permanent mark could be set.

**Bickford** (Vermont, Orleans County; J. D. Craig, 1917).—In Troy Township, in the second field south of Newell Bickford's farmhouse. The station is just south of a small clump of trees in the northwest corner of the field.

Station mark: Bronze disk of the Geodetic Survey of Canada set in rock outcrop mostly covered with moss.

**Abercorn Bench Mark** (Quebec, Brome County; J. D. Craig, 1917).—In Sutton Township, in the east face of a concrete culvert under the Canadian Pacific Railway, 250 feet north of a diagonal highway crossing, at mileage 25.8 from Enlaugra, Quebec, 1 mile south of Abercorn, Quebec.

Station mark: Bench mark bolt of the Geodetic Survey of Canada, stamped "B. M. No. 55."

**Fort** (New York, Clinton County; J. D. Craig, 1917).—In Champlain Township, on the site of the old astronomical station of 1845, about one-half mile north of Rouses Point, N. Y., in the open field west of old Fort Montgomery.

Station mark: The more westerly of the two holes in an 18-inch square cut stone lying just east of the two vertical cut stones forming the piers for the old prime vertical instrument.

**Havelock** (Quebec, Huntingdon County; J. D. Craig, 1917).—In Havelock Township, lot 37A, range 1, about three-fourths mile west of "Covey Hill" triangulation station, on the property of Jos. Charlois, in the third field south of the east-and-west road over Covey Hill. It is on a pile of rocks cleared from the field. A 35-foot tripod and scaffold were erected here.

Station mark: Bronze disk of the Geodetic Survey of Canada set in rock flush with the surface of the ground.

**Clinton** (New York, Clinton County; J. D. Craig, 1917).—In Clinton Township, on a slight rise in second growth about one-half mile southwest of the northeast corner of Clinton Township. A 30-foot scaffold was erected around a tree.

Station mark: Nail driven in the roots of the tree forming the center of the tripod.

**Mooers** (New York, Clinton County; J. D. Craig, 1917).—In Mooers Township, about  $1\frac{1}{2}$  miles southeast of the northwest corner of the township, on a slight rise in an open field with woods to the southeast and a burnt-over tract to the northwest. To reach the station, go west from Cannons Corners, N. Y., to the next road north. The station is about one-fourth mile west of the end of the traveled road.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Bolt Near Line** (New York, Clinton County; J. D. Craig, 1917).—In Mooers Township, about 2,000 feet west of monument 688 and just south of the Quebec-New York boundary. It is about three-fourths mile west of the "Gulf."

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Dalgliesh** (Quebec, Huntingdon County; J. D. Craig, 1917).—In Godmanchester Township, about 1 mile north of Clyde Corners, Quebec, on a bare ridge with a scrub cedar to the north of the station and an old orchard to the south of it. It is on the property of Chas. T. Dalgliesh, and about 450 feet east of the road.

Station mark: Bronze disk of the Geodetic Survey of Canada set in rock flush with the surface of the ground.

**Fee** (Quebec, Huntingdon County; J. D. Craig, 1917).—In Elgin Township, one-half mile north of monument 722-A, on the Quebec-New York boundary and about 5 feet east of a fence.

Station mark: Nail in hub.

**Leblanc** (Quebec, Huntingdon County; J. D. Craig, 1917).—In Godmanchester Township, about 10 miles west of Huntingdon, Quebec. It is on the southeastern slope, near the edge of the timber, on a timbered knoll on the farm of Alphonse Leblanc.

Station mark: Nail driven in a root of the tree, which forms the center of the 30-foot tripod.

**Boulder** (New York, Franklin County; J. D. Craig, 1917).—In Constable Township, about three-fourths mile west of Trout River, N. Y., on a rock outcrop about 200 feet north of the road and north of an orchard. To reach the station take the road leading southwest from the village on the New York side of the line. The station is near the old foundation of a burned house. The rock has a flat top and rises 3 feet above the surface of the ground.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Langevin** (Quebec, Huntingdon County; J. D. Craig, 1917).—In Godmanchester Township, about  $1\frac{1}{2}$  miles northwest of Trout River, N. Y., on a slight rise just west of the barn of Mr. Langevin.

Station mark: Bronze disk of the Geodetic Survey of Canada set in solid rock.

**Brady** (Quebec, Huntingdon County; J. D. Craig, 1917).—In Godmanchester Township, in the flat open field between the house of Mr. Brady and the Grand Trunk Railway. The Brady house is about 1 mile north and west of Trout River, N. Y.

Station mark: Nail in hub.

**U. S. L. S. No. 13** (New York, Franklin County; United States Lake Survey; J. A. Pounder, 1923).—On the Indian reservation, 1,800 feet south of the St. Lawrence River, 2,500 feet east of the Raquette River, and about 50 feet above the water surface.

Station mark: Surface and subsurface stones marked with triangles and holes; the lower stone, buried 1 foot below the surface, is 0.8 by 0.5 by 1.8 feet. The reference marks are as follows:

	Azimuth (from the south)	Distance
	° ' "	Feet
Cross on boulder 5 by 8 by $3\frac{1}{2}$ feet above ground.....	170 48	136
Cross on boulder 5 by 8 by $3\frac{1}{2}$ feet.....	130 00	80
Cross on boulder 6 by 6 by 2 feet.....	90 33	122
Southeast corner of barn.....	7 18	521



**U. S. L. S. No. 8** (New York, Franklin County; United States Lake Survey; J. A. Pounder, 1923).—On the St. Regis Indian Reservation,  $1\frac{1}{4}$  miles east of the international bridge and 1,300 feet back from the river bank.

Station mark: Surface and subsurface stones marked with triangles and center holes. Lower stone buried 3 feet below the surface of the ground. Reference marks as follows:

	Azimuth (from the south)	Distance
	° ' "	<i>Feet</i>
North end stone fence.....	8 48	18.5
Cross cut in rock 4 by 2 feet.....	121 10	17.5
Southwest corner of house.....	323 52	373.0
Northwest corner of schoolhouse.....	340 00	509.0



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Across	437		13	Boundary	396	463	2, 11
Advent	432	470	14	Boundary Lake east base			
Alburg	444	480	3	(S-315)	383		8
Alder	436		13	Boundary Lake west base			
Alec	412	469	12	(S-316)	383		8
Andover	346	450	1	Bowman	406	467	12
Arnold	402	466	11	Brady	447	482	3
Aroostook	346	451	1	Brick building, cupola			
Art	408		12	flagpole, Edmundston,			
Ash	437		13	N. B.	393		5
Astronomic (Edmundston)	347	453	1	Bridge	435		13
Averill	443	478	3	Broo	445	481	3
Azimuth mark	441		14	Brook (Halls Stream)	434		13
Azimuth station (C-167)	369		8	Brook (St. John River)	350		1
Azimuth station (Ref. Mon. C-151)	371		8	Brown (Halls Stream)	435		13
Back	400	466	11	Brown (Highlands)	400	465	11
Baker	347	453	1	Brown (West Line)	443	478	3
Baker Brook bench mark	350	337, 456	1	Bruno	349		1
Bald	395	462	1, 2	Brush	434	471	14
Bank	434		14	Bryant	432		14
Barker	406	467	12	Bump	396	462	2, 11
Barn	433		14	Bunch	439		13
Bear	398	465	11	Burnt	434		13, 14
Beau Lake north base (Ref. Mon. C-131)	368		7	Butter factory, Ste. Anne, N. B.	391		4
Beau Lake south base (C-163)	368		7	C-1	351		4
Beecher	398	465	2, 3, 14	C-2	351		4
Beecher Falls north base	432	469	14	C-2 (Southwest Branch)	413		9
Beecher Falls south base	432	469	14	C-3 (Southwest Branch)	413		9
Beecher tablet	398	465	2, 3, 14	C-4	351		4
Bench mark, Abercorn	446	342, 481	3	C-4 (Southwest Branch)	413		9
Bench mark, Baker Brook	350	337, 456	1	C-5	351		4
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Bench mark, Stanstead	445	341, 481	3	C-6 (Grand Falls east base)	351		4
Berry	439	475	13	C-6 (Southwest Branch)	413		9
Bickford	445	481	3	C-7 (Grand Falls west base)	351		4
Bien	397	464	2, 12	C-7 (Southwest Branch)	413		9
Big	440	476	12, 13	C-8	351		4
Birch	433		14	C-9	351		4
Birches	409	468	12	C-9 (Southwest Branch)	414		9
Bird	435	471	13	C-10	351		4
Blaine	346	450	1	C-10 (Southwest Branch)	414		9
Blair	444	480	3	C-11 (Southwest Branch)	414		9
Blind	435		13	C-12	352		4
Block	439		13	C-12 (Southwest Branch)	414		9
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Blue River east base (S-203)	371		8	C-14	352		4
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Bluff	409		12	C-15	352		4
Bog	439	476	13	C-15 (Southwest Branch)	414		9
Boggy	404	466	11	C-16	352		4
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Bon Durban	397	463	2, 12	C-19	352		4
Bonnet	395	461	1	C-19 (Southwest Branch)	415		9
Bonville	444	481	3	C-20	353		4
Boom-house smoke pipe, Lille, Me	391		5	C-21	353		4
Boots	404	466	11	C-23	353		4
Boulder (Highlands)	404	467	11	C-23 (Southwest Branch)	415		9
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C-268	380		8	Cornwall, west church (Catholic)	448		3
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C-277	380		8	Customhouse flagpole, Van Buren, Me.	390		4
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C-280	381		8	Cyr (St. John River)	349	455	1
C-281	381		8	Dalglish	447	482	3
C-282	381		8	Dave	350	456	1
C-283	381		8	Day	439		13
C-284	381		8	Dead	402	466	11
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Campbell	408	468	12	East Lake	443	479	3
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Canadian Glazier	347	453	1	Eck	397	464	2, 12
Car	442		13	Edmund	347	452	1
Caribou	346	450	1	Edmundston astronomic	347	453	1
Caron	433	470	14	Edmundston bench mark	350	337, 455	1
Caswell	346	451	1	Edmundston, N. B., Catholic Church, spire, 1909	393		5
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Chabot	348	454	1				
Chaloux	432	469	14				
Champlain	444	480	3				
Chapel of St. Joseph and St. Anselm (Anselme), spire, near Hamlin, Me., 1909	390		4				
Charlie	407		12				
Chartierville, church spire	413		12				
Cherry	432	470	14				
Chesham, church spire	413		12				
Clair	350	455	1				
Clair, N. B., church spire, 1910	394		6				
Clair east base	360		6				
Clair west base	360		6				
Clay	436		13				
Cliff	434		13, 14				
Clinton	447	482	3				
Coat	437		13				
Company	436		13				
Cone	433	470	14				
Connor	346	451	1				
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Elm	434		13	Green River, N. B., hotel, flagpole on cupola, 1909	392		5
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Estcourt	348	454	1	Hall	435		13
Fairfax	443	479	3	Hamlin	349	455	1
Fall	433	470	14	Hardwood Mountain	395	461	1
Falls	349	455	1	Havelock	447	482	3
Farm	437		13	Hazel	434		14
Fee	447	482	3	Heavy	438		13
Fence	435		13	Hen	410		12
Fino	443	478	3	Hereford (Geodetic Sur- vey of Canada)	397	464	2, 3
Fir	434		13	High	438		13
First	347	452	1	Hill	398	465	14
Fish	407	467	12	Hill tablet	398	465	2, 14
Flagpole on brown house with red roof, St. Basil, N. B.	392		5	Hollis	411	468	12
Flagpole on cupola, St. Leonard, N. B.	391		4	Home	438		13
Flagpole on cupola (with round windows), Ed- mundston, N. B.	393		5	House	433		14
Flagpole on white house with black roof, St. Basil, N. B.	392		5	House flagpole, Grand Isle, Me.	392		5
Flagpole on white house with red roof, St. Basil, N. B.	392		5	Howe	397	464	2, 12
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Forty-fifth parallel monu- ment, ecc.	446		3	Iron cross on boulder, Van Buren, Me.	391		4
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Franklin	444	480	3	I. W. C. 3	448		3
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Godmanchester township, southwest corner	448		3	Joe	397	464	2, 12
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Grand	349	455	1	Judge's stand, race track, Van Buren, Me.	391		4
Grand Falls east base (C-6)	351		4	Julé	405	467	11, 12
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Grand Isle	346	451	1	Keegan, Me., St. John Lumber Co.'s mill, larg- est stack, 1909	391		4
Grand Isle, Me., Craw- ford's sawmill stack, 1909	392		5	Keegan, Me., water tower	354		4
				Keegan railroad bridge boundary point	385	458	4
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				Kelly Rapids west base (C-211)	373		8
				Ken	396		2
				Kennedy (U. S. C. & G. S.)	345	449	1
				Kent	347	453	1
				Kibby	395	462	2, 11
				King	413	469	13
				Knoll	398		2, 13



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Landon	407	467	11, 12	Moccasin	396	462	2, 11
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Ledge	433	470	14	ments.)			
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ard, N. B.	390		4	Mon. 26	348		1
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vey of Canada)	395	461	1	Mon. 53	348		1
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of village, 1909	391		5	Mon. 81-B	349		1
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northwest of village,				Mon. 180	390		8
1909	392		5	Mon. 180-A	390		8
Lille, Me., schoolhouse				Mon. 181	383		8
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of Canada)	395, 426	461	1, 2, 10	Mon. 303	398		1
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Littleton	346	449	1	Mon. 308	413		9
Log	438		13	Mon. 314	421		10
Long	347	453	1	Mon. 315	421		10
Lost	437		13	Mon. 316	422		10
Lot	432	469	14	Mon. 317	422		10
Lot 5 R 7 (Potton tp.,				Mon. 318	422		10
cadastral No. 768)	446		3	Mon. 319	422		10
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Lowell	396	462	2, 11	Mon. 321	422		10
Lowelltown north base	396	463	2, 11	Mon. 322	422		10
Lowelltown south base	396	463	2, 11	Mon. 323	422		10
Lower	436		13	Mon. 324	423		10
Ludlow	346	449	1	Mon. 325	423		10
Lumber	435		13	Mon. 326	423		10
Lunnon	348	455	1	Mon. 327	423		10
				Mon. 328	423		10
Madawaska	347	452	1	Mon. 329	423		10
Madawaska, Me., chim-				Mon. 330	423		10
ney on yellow house,				Mon. 331	423		10
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house, flagpole, 1909	393		5	Mon. 334	424		10
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on schoolhouse, 1909	393		5	Mon. 336	424		10
Madawaska, Me., flagpole				Mon. 337	424		10
on yellow store, 1909	393		5	Mon. 338	424		10
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stack, 1909	393		5	Mon. 340	424		10
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Maheux	395	461	1	Mon. 343	425		10
Marble	406	467	12	Mon. 345	425		10
Mars Hill	346	450	1	Mon. 346	425		10
McDermott	444	480	3	Mon. 347	425		10
McLeod	405	467	11	Mon. 348	426		10
Meadow	432		14	Mon. 349	426		10
Megantic (Geodetic Sur-				Mon. 350	426		10
vey of Canada)	395	461	2	Mon. 351	426		10
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S-294	381		8	thelm (Anselme) Chapel	390		4
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St. Basil, N. B., convent				Shack	434		13, 14
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1909	392		5	Shea	447		3
St. Basil, N. B., flagpole				Sheet-iron cupola, flag-			
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red roof, 1909	392		5	B.	393		5
St. Basil, N. B., flagpole				Sheldon	444	480	3
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black roof, west of vil-				Shine	439	475	13
lage, 1909	392		5	Shot	437		13
St. Basil, N. B., flagpole				Sicard	445	481	3
on white house with				Sightly	397	464	2, 12, 13
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